

ANNUAL REPORTS  
OF  
THE PRESIDENT AND THE TREASURER  
OF  
HARVARD COLLEGE  
1898-99



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1900

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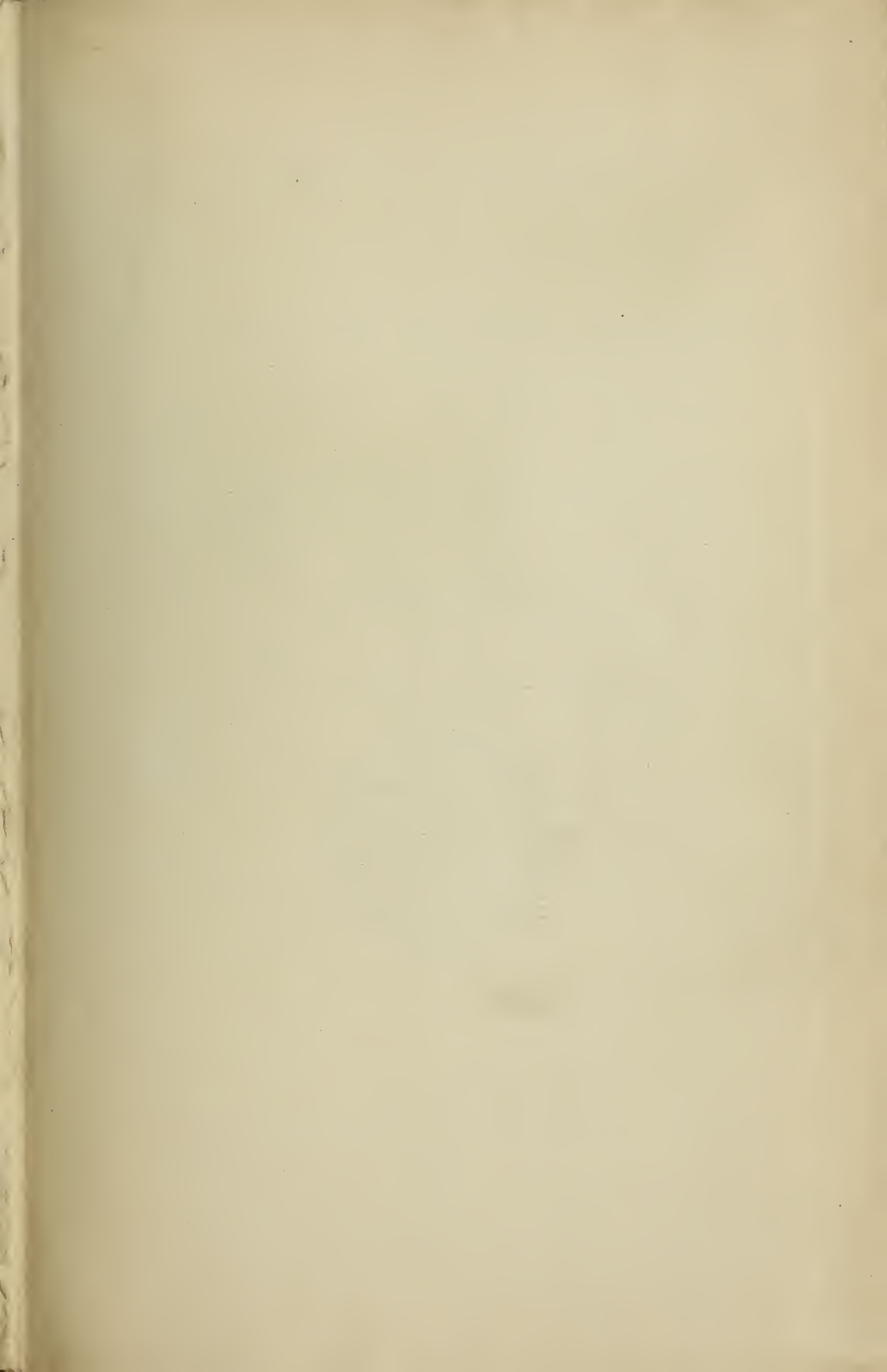
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## PRESIDENT'S REPORT FOR 1898-99.

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TO THE BOARD OF OVERSEERS:—

The President of the University has the honor to submit the following report for the academic year 1898-99, — namely, from September 29, 1898, to September 28, 1899.

No death occurred within the year in the Governing Boards and Faculties of the University — a rare exemption.

After a discussion which lasted for three years the Faculty of Arts and Sciences finally adopted (16 May, 1899) a new scheme of requirements for admission to Harvard College and the Lawrence Scientific School. At the date of the last Annual Report the scheme which had passed the Faculty by a large majority had been returned to the Faculty by the Board of Overseers “for further consideration and report, to the end that the preparation in algebra and history now required of candidates for admission may not be reduced.” Algebra and history had been made elective in the scheme of the Faculty; but the Board of Overseers thought that these two subjects should remain required. The Faculty first consented to restore algebra to the required list; and later, after another appeal to the Overseers, restored history to the list of required subjects, making, however, some diminution in the amount of the proposed requirement therein. With these modifications the new scheme was accepted by both the Corporation and the Board of Overseers.

Since the definition of the amount and kind of instruction in history is a new one, and one which assumes that the schools will give more attention to history than most of them have ever given, the history feature in the new plan is the source of some anxiety to both the College and the schools. It results

from differences of opinion between the Faculty and the Board of Overseers, the Board of Overseers being willing to retain as a required subject the very small amount of history heretofore required, the Faculty, guided by its Department of History, maintaining that the existing requirement in history has had no value whatever, and insisting on its new definition of historical study for secondary schools. If a good proportion of the secondary schools of the country will give to history the time which is really needed to prepare pupils well in the historical subjects as defined by the Faculty, a great improvement will be brought about in secondary education. The introduction of an advanced study in history was another important feature in the new scheme of requirements, but it was not a subject of contention.

When the Overseers insisted that algebra and elementary history should be required subjects, they diminished sensibly the range of election of studies open to candidates for admission, and thereby impaired the best reliance of the Faculty for preventing the total amount of work required of any individual candidate from being raised. The scheme finally adopted must, therefore, be very carefully administered for several years, in order to prevent an increase in the work required for admission. It was pointed out in the last report "that almost every department represented among the subjects required for admission feels that it has gained something under the new definitions or under the new methods of utilizing for admission the various permitted subjects." Whether these departmental convictions have been reconciled with the declared policy of the Faculty not to increase the requirements for admission remains to be seen.

The new plan for admission will bring the College into closer connection with high schools throughout the country, and will tend to enlarge the election of studies in all secondary schools; in consequence it will tend to make secondary education less discursive for the individual pupil than it has been. The new requirements are not only perfectly adapted to the needs of the classical schools—indeed, are better adapted to the programmes of well-conducted classical schools than any requirements for admission to Harvard College have ever been;



but they are also well adapted to the needs of schools which maintain only a Latin-English or Latin-Scientific course. Hereafter it will not be necessary for a boy of thirteen or fourteen years of age to decide then once for all the question whether he is going to college or not. If he should decide at sixteen or seventeen that he wants to go to college, most of the studies which he has already pursued in his good secondary school will count towards admission, and he will only have to add in the later years of his school course two or three subjects which he has heretofore neglected. This postponement of the most important decision which has to be made for or by a well-trained boy is itself a great advantage. It was one of the objects aimed at in the tentative four-year programmes for secondary schools which were published by the Committee of Ten in 1893.

The new scheme permits a free option for Greek instead of the restricted option which has been allowed at Harvard College for many years. Boys who are unable or unwilling to study Greek may present instead of that language a modern language, history, ancient or modern, or scientific subjects selected from a considerable group. Although nineteen points out of twenty-six appear to be required under the new scheme, (see the report of the Dean of the Faculty, p. 104) it will be observed that in making up the list of nineteen points various options are open to the candidate; so that the amount of the election is larger than at first sight appears. The most noticeable peculiarity in the scheme is the absence of English from the list of advanced subjects. In this respect the Faculty acceded to the wishes of the English Department, which thought it wiser not to offer an advanced subject in English for possible competition with advanced Latin or Greek.

The range of election for the individual candidate under this scheme may be illustrated as follows: Nearly three-quarters of his preparation may be just such as it was one hundred years, or fifty years ago, — namely, in Latin, Greek, elementary mathematics, and ancient history; or, on the other hand, these traditional subjects may be represented by less than one third of his secondary school studies, — namely, by Latin, algebra, and geometry. Again, nearly half of his

preparatory studies may be English and the modern languages ; or the natural sciences, which thirty years ago were not accepted at all for admission to college, may constitute a little more than one third of his preparatory studies. Further, at the small additional cost of offering three advanced subjects instead of two, the candidate may present himself in modern languages and history for sixteen out of the twenty-six points required ; whereas thirty years ago the modern languages were not accepted at all, and history was represented only by a fragmentary and fleeting acquaintance with Greek and Roman history, such as a boy might easily acquire in a day or two from any small primer of ancient history.

All the subjects permitted for admission to Harvard College may also be counted for admission to the Lawrence Scientific School, but the Scientific School will also count towards admission shopwork and drawing, botany and zoölogy. Shopwork and drawing are certainly desirable subjects at school for any boy who thinks he may pursue some branch of Engineering, or may devote himself to mining and metallurgy, or architecture ; and the elements of botany and zoölogy are desirable at school for almost all children. As the Lawrence Scientific School maintains a valuable four years' course in biology and in anatomy and physiology, it is natural that the school should endeavor to promote the study of the elements of botany and zoölogy in secondary schools. It was mentioned in last year's Report that the requirements for admission to the Scientific School are to be gradually raised to substantial equality with those of the College, although the range of accepted subjects will be larger than in the College.

The Faculty of Arts and Sciences is, on the whole, well content with the results of its labors over the requirements for admission to the two undergraduate departments of the University, and looks forward with pleasure to a long period of repose so far as this difficult subject is concerned.

On the 26th of March, 1889, the Faculty of Harvard College sent to the President and Fellows certain proposed modifications of its regulations intended to facilitate the attainment of the degree of Bachelor of Arts in less than four years.



The most important modification proposed was the reduction of the number of courses required for the degree of A.B. from  $18\frac{4}{10}$  to 16. The proposals of the Faculty were adopted by the President and Fellows; but after the lapse of more than a year they were rejected, with one unimportant exception, by the Board of Overseers. The action of the Faculty had been taken by only a feeble majority—at first 34 to 22, but subsequently reduced to 34 to 28.

It now appears that the number of courses required for the degree of Bachelor of Arts has been progressively diminished of late years, as the result of several votes adopted by the Faculty for various reasons which had no immediate bearing on the policy of giving the degree of Bachelor of Arts in three years instead of four. The first of these measures was adopted by the Faculty on the 27th of May, 1890, when the Faculty voted to dispense with the short prescribed course called *Physics A*, a course which counted towards the degree as  $\frac{2}{10}$  of a full course. In May, 1894, the corresponding short course called *Chemistry A* was abolished, causing a further reduction in the number of courses required for the degree to 18. This change took effect on the class which graduated in 1898. In the spring of 1898, and in the spring of 1899, certain further reductions were made in prescribed English, whereby (1) all students who attain grade A or B in English *A* are exempted from prescribed English *B* or *BC*, each of which has counted as a half course toward the degree; (2) English *C* is abolished, so that after the academic year 1898–99 the number of courses required for the degree is for all students not more than  $17\frac{1}{2}$ ; (3) for all students who attain grade C or higher in the new English *A*, which is a consolidation of the former English *A* with English *B*, the requirement for the degree of A.B. becomes 17 courses. This last reduction took effect for the first time on the class which entered College in 1899. (4) Hereafter for students who anticipate English *A* with grade A or B the requirement for the degree of A.B. is 16, and for students who anticipate English *A* with the grade of C or D the requirement is  $16\frac{1}{2}$  courses.

For years the Faculty, with the cordial assent of the Corporation and the Board of Overseers, has been endeavoring to

put back into the secondary schools the prescribed instruction in English; and the changes just recounted testify to the partial success of these endeavors. The candidates admitted to College come better and better prepared in English; because the secondary schools are devoting more and more time to well-directed instruction in the native language. After the current year, the requirement for the degree of A.B. will be 17 courses for all students who have been well enough trained in the elements of English to attain grade C or a higher grade in the prescribed English of the Freshman year; and a large majority of all College students will attain grade A, B, or C in the course. For students who anticipate English A the number of courses required for the degree will be either 16 or  $16\frac{1}{2}$ , according to the grade which they obtain at the examination.

These changes, made by the Faculty without the slightest reference to the three years' course for the A.B., clearly facilitate the obtaining of the Bachelor's degree in three years; but they do not lower in the least the standard of the degree. This remark applies to the little courses called Physics A and Chemistry A; for those courses were abolished at the instance of the Departments of Physics and Chemistry, and because those Departments represented that the courses abolished had no real value either for the students or for the departments. It is the belief of the Department of English that the new English A is fully equivalent to the former English A and the former English B added together; and it is also their confident opinion that the former English A, though it counted for a full course, was not really equivalent to a full course.

The common attainment of the degree of Bachelor of Arts in three years is certainly approaching (compare the report of the Dean of Harvard College, p. 116). No specific legislation will be needed to accomplish this important change; for any young man of fair abilities can now procure the degree in three years without hurry or overwork, if he wishes to do so, or if his parents wish to have him. That this wish is felt by an increasing number of students and parents is demonstrated in the following table, part of which is repeated from the Report of last year. In eight years the proportion of the graduates of

	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.
Total number receiving A.B. . . . .	293	332	348	364	396	383	392	443
1. Graduated in three years . . . .	18	9	18	17	15	23	17	25
Of these were credited at admission, 2 or more courses each . . . . .	3	3	4	9	5	8	8	9
Less than 2 courses each . . . .	5	1	3	3	4	6	2	7
2. Had leave of absence for Senior Year . . . . .	7	15	11	22	26	31	31	46
Credited with 18.2 courses . . . .	1	6	8	11	8	13	16	25
" " 17.7 " . . . .	2	3	2	3	4	4	4	6
" " 17.2 " . . . .	1	1	..	4	4	6	4	9
" " 16.7 " . . . .	1	2	..	5	9	6	7	6
" " 16.2 " . . . .	4	4	..	..	2	2	..	..
Of these were credited at admission, 2 or more courses each . . . . .	..	3	..	..	1	1	3	10
Less than 2 courses each . . . .	..	..	2	6	6	6	4	15
3. Registered as Seniors, but credited with 16 courses or more .	30	24	48	49	55	58	54	94
Credited with 18.2 courses . . . .	3	6	10	8	5	1	12	16
" " 17.7 " . . . .	1	1	..	4	2	4	5	13
" " 17.2 " . . . .	7	5	9	11	10	10	12	14
" " 16.7 " . . . .	4	4	8	6	14	11	9	23
" " 16.2 " . . . .	15	8	21	20	24	32	16	28
Of these were credited at admission, 2 or more courses each . . . . .	..	1	..	..	..	2	4	16
Less than 2 courses each . . . .	3	1	1	2	5	12	11	22
Number credited in three years with 16 or more courses . . . . .	55	48	77	88	96	112	102	165
Of these with 18 or more courses . .	22	21	36	36	28	37	45	66

the year who were credited in three years with 16 or more courses has risen from less than one-fourth of the whole number to very nearly two-fifths. The strength of the movement is disguised, as was pointed out in the last Report, by the desire which many men feel to be recorded in the Quinquennial Catalogue with most of the friends and contemporaries with whom they entered College; but within a time comparatively short the majority of those who enter the Freshman Class will

come to College with the purpose of completing the requirement for the degree in three years. A large number of the present Freshman Class have already avowed that intention, and made their choice of studies accordingly. The movement will be promoted by the opposition of the Law Faculty to the admission to that School (see report of the Dean of the Law School, p. 174) of College Seniors who have not absolutely completed their studies for the A.B. degree. It is of course desirable that the requirements for the A.B. degree should have been fully met before the student enters a graduate department of the University.

On the 29th of November, 1880, the President and Fellows, after carefully consulting the professors and assistant professors of that time, entered on their records a scheme for retiring allowances as a basis for endowment. This scheme was thoroughly reconsidered during the year 1898-99, and was twice submitted to all the permanent University officers. The further study resulted in some modifications of the original scheme; but none of these modifications were of a grave or fundamental character. They were simply expedient additions to the original scheme. The modified plan was adopted by the President and Fellows on the 27th of March, 1899, to be put in force on and after September 1st, 1899. The regulations adopted are printed in full in the Appendix, page 307. The main features of the plan are as follows: Any person who has been a professor or assistant professor for twenty years, and has reached the age of sixty years, may, if he please, retire on an allowance of twenty-sixtieths of his last annual salary in activity, and an additional allowance of one sixtieth for each year of service in addition to twenty, provided that no retiring allowance shall exceed forty-sixtieths of the last annual salary. The President and Fellows at their discretion may retire wholly or in part any professor who has reached the age of sixty-six on the allowance to which he is entitled. In certain cases, duly set forth, the President and Fellows may at their discretion give retiring allowances to persons who do not entirely fulfil the above mentioned conditions, or may make retiring allowances in excess of the normal amount; and, finally, any professor who



is entitled to a retiring allowance may at his pleasure retire from a part of his work and receive a partial allowance. Librarians, curators, assistants in the scientific establishments, and administrative officers of long tenure are entitled, like professors, to the privileges of the system.

The adoption of this system of retiring allowances marks a new epoch for university officials in the United States; for it is the first carefully considered and comprehensive university system to be put in force in the country. It makes the position of a Harvard professor much more desirable than it ever was before; since it secures him after forty-five years of age or thereabouts against every adverse chance except untimely death, and makes it possible for him to provide better than ever before against the chance of death. As soon as a Harvard professor has obtained his full professorship, he can now insure his life for the benefit of his family on a much larger scale than he could before the adoption of the retiring allowance system; for the future of his family is assured so long as he himself lives. Moreover the dignity, independence, and repose of the calling are increased. Furthermore, the efficiency of any life-tenure service is sure to be increased by the wise application of a retiring allowance system. Officials who have become too old for the effective discharge of their duties can be displaced in an honorable and considerate way; and younger men can, therefore, be promoted more promptly than would otherwise be possible. It is not too much to say that no life-tenure corps or staff can be maintained in a high state of efficiency without a system of retiring allowances.

In the democratic society of the United States, universities are resorted to by young men from all conditions of life as regards both inherited property and inherited education. In every American university there are large numbers of young men whose parents were not highly educated, and also large numbers who receive from their families but very slender aid in their pursuit of an education. Accordingly, the American universities are obliged to devote some attention to the means of economical living at the seat of each university. The President and Fellows steadily keep this important subject in mind as

regards rooms, boarding-places, and the various supplies which students must have, such as clothes, books, drawing materials, stationery, and furniture.

The Coöperative Society, having demonstrated its serviceableness to the members of the University by furnishing students' supplies at prices decidedly lower than those of the ordinary shops, the Corporation, on the 19th of June, agreed to make certain improvements in the quarters of the Society in Dane Hall, with the proviso, however, that the Society should have no right of occupation for any stated period whatever. Beside maintaining a shop of its own, the Society procures for students stated discounts at many other shops. A branch of the Cambridge shop of the Society was maintained for many years at the Medical School in Boston. This branch was highly successful, and was of so much service to the numerous students who resort to that part of Boston that it was found expedient, when the Medical School could no longer give it a room, to hire for it a convenient shop on Boylston Street near Exeter Street, where it is now established.

So far as rooms are concerned, the general rise in the scale of living in the community at large has caused a moderate increase in room rents within the last thirty years; because the students' chambers belonging to the University, and all other rooms occupied by students in Cambridge, are better equipped and cared for than they used to be. Just at present, there is an over-supply of students' rooms in the neighborhood of the University, the building of private dormitories having been somewhat overdone.

In the cost of wholesome board in Cambridge, there has been a diminution within the same period. The Dining Hall Association feeds about 1,150 students in Memorial Hall at an average price of about \$4 a week. The new Randall Dining Hall, which came into use at the beginning of the current academic year, feeds nearly 800 students in what may be called the restaurant method. Each member of the Association pays an entrance fee of \$3, comes to the Hall for as many meals in a week or a day as he chooses, and pays for just what he orders at the prices named on the bill of fare. Several specimen bills of fare will be found in the Appendix, page 310,

The general scheme on which the Hall is conducted is also given in full in the Appendix, page 308. At the end of the year, after all expenses have been paid, including the interest on all advances made by the Corporation, and the proper reserves have been made for repairs and for keeping good the stock of utensils, linen, etc., the remaining surplus of receipts over expenses is divided among the members of the Association. This dividend ordinarily exceeds considerably the entrance fee. At this Hall, as at its predecessor the Foxcroft Club, a frugal student, who has good judgment in the selection of his diet, can board at not more than \$2.50 a week; but the average student used to spend at the Foxcroft Club from \$2.75 a week to \$3. A new feature in Randall Hall is the combination meals, mentioned on the bills of fare printed in the Appendix, at 14 cents for breakfast, 14 cents for luncheon, and 16 cents for dinner. A student's board, if he take twenty-one of these combination meals a week, will amount to \$3.08. The combinations are much used in the Hall.

The cost of Randall Hall exceeded the gift from the "John W. and Belinda L. Randall Charities Corporation" by about \$30,000; so that the Randall Dining Hall Association will have to pay five per cent. interest on this excess, and a fixed sum per year for the reduction of the debt, beside paying interest on the advances made by the Corporation for paying wages and buying provisions. The present officers of the Hall are confident that at the prices now charged for the food served, the Association will be able to meet every legitimate charge.

Nearly 2,000 students take their meals in Memorial Hall and Randall Hall. About 1,300 other students get their meals at various clubs and boarding-houses in Cambridge at prices which vary widely, but are mostly included between \$5 and \$8 a week. It is apparent from these figures that both Memorial Hall and Randall Hall are great charities, which promote education by saving the students of the University at least \$150,000 a year of expenditure on food.

Randall Hall is admirably adapted to its purpose, thanks to the investigations made by Mr. Allen Danforth, Comptroller, and to the patient supervision which, in connection with the



architects, Messrs. Wheelwright and Haven, he gave to all the details of the apparatus for cooking and storing food. The equipment of the kitchen, bakery, store-rooms, pantry, and laundry of Randall Hall is admirable. The Dining Hall itself is handsome and cheerful, and spacious enough to serve comfortably at least 1,500 persons at a meal on the restaurant plan. At present there is room for a considerable number of club tables, that is, tables at which certain persons may always sit.

One noticeable difference between Memorial Hall and Randall Hall is that at Randall Hall all the waiters are students. There is an active demand for these places, and the method seems equally satisfactory to those who wait and to those who are waited on. The waiters are selected and directed altogether by the student officers of the Association; they are paid weekly at the rate of 25 cents an hour, and as a rule do not work more than sixteen hours a week. The method is economical, because the number of waiters can be kept proportionate to the resort, — that is, fewer waiters are employed at the less frequented meals, or at the less frequented part of the period of a single meal.

The Board of Preachers which served during the year 1898-99 had to be completely replaced for the year now current. Dr. Harris became President of Amherst College, Dr. Faunce President of Brown University, and Dr. Van Dyke Professor in Princeton University; Dr. Hodges retired at the end of three years of continuous service, and President Hyde found himself unable to absent himself from Bowdoin College during six weeks for another year. It has not happened before, since the Board of Preachers was established in 1886, that all its members were replaced simultaneously. The new Board consists of President Tucker of Dartmouth College, President Hall of the Union Theological Seminary, New York City, Rev. Endicott Peabody of Groton School, Rev. Robert MacDonald of Brooklyn, New York, and Rev. Paul Revere Frothingham of New Bedford; and five denominations are represented in it.

The list of courses of instruction contained in the Report of the Dean of the Faculty of Arts and Sciences (p. 57) reveals



an interesting fact which former lists have not so well exhibited, the fact, namely, that the pure lecture is hardly used in this department of the University. The courses in languages, philosophy, and history make great use of recitations, reports, written exercises, conferences, and theses to reënforce the lectures, and the courses in scientific subjects add to these methods laboratory work, excursions, draughting, shopwork, and field practice. This list, which is published every year, will also inform anyone competent to make such an inquiry about the working of the elective system. It shows what subjects attract large numbers, and what subjects small; it gives not only the total number of students electing each course, but the distribution of these elections among Graduates, Seniors, Juniors, Sophomores, Freshmen, Special Students, and Professional Students. It also exhibits to an expert the relative expenditure on elementary and advanced subjects; and a comparison of the lists of four or five successive years will demonstrate the variety which the elective system may secure in the work of the individual teacher from year to year. In short, the list is as complete an exhibition as can be made of the amount of instruction given by the Faculty of Arts and Sciences year by year, of the methods of this instruction, and of the use made by the students of the courses offered. The total amount of instruction increases from year to year, though but slowly. Thus, the total amount of instruction announced for the current academic year shows a net increase of only about ten courses over that offered in 1898-99 (p. 92).

The attention of the Overseers is invited to the Dean's exposition of the relations between the Faculty of Arts and Sciences and Radcliffe College, a subject which was carefully investigated by a committee of the Faculty in the year under review. The conclusions reached were that the standards of Harvard and Radcliffe are identical, and that the Harvard standard has been strictly enforced at Radcliffe.

At the end of his report (p. 102) the Dean completes the excellent account he began in last year's report of the long discussion of College admission requirements, and of its final result at the close of the year.

In the President's Report for 1895-96 attention was called to the increasing authority and influence of the sections of the Faculty of Arts and Sciences called Divisions and Departments. The serviceableness of these Divisions continues to increase, and more and more responsibility is placed on them. There are now fourteen Divisions, five of which are subdivided into Departments. The action of the Divisions in recommending young men to the Corporation for appointments as annual instructors and assistants becomes more and more systematic and effective; and the authority of the chairmen of these Divisions is more and more developed and recognized. The chairman of a Division does not ordinarily hold office for any very long term, and he is not selected on any principle of seniority. A committee consisting of the President, the Dean of the Faculty, the Dean of the Graduate School, the Dean of Harvard College, and the Dean of the Lawrence Scientific School each year selects the chairmen of the Divisions and Departments; and four or five years is considered a suitable term of service. In the few Divisions and Departments in which there are only one or two professors, the chairmanship is necessarily a rather permanent office; but in the more numerous cases in which there are many professors in the same Division or Department the chairman can be often changed. Business brought before the Faculty which concerns a Division or Department has as a rule been considered previously in the Division or Department. If some measure is brought into the Faculty before it has been so considered, the ordinary method is to refer it to the Division or Department concerned for consideration and report. The chairman of the Division or Department then has the opportunity of presenting the subject to the Faculty. It sometimes happens that action is urged on the Faculty by the chairman of a Division or Department which is not in accordance with his own judgment, or which has commanded but a slender majority in the Division or Department; but if the matter is one which provokes much contention, the real state of facts within the Division or Department is ordinarily brought out before the discussion has proceeded far in the Faculty. In the same way a recommendation which has really commanded but a small majority is some-

times made to the Corporation by a Division or Department. These difficulties, however, by no means counterbalance the many qualifications for efficient and judicious action which the Divisions and Departments possess. The proper order and wise development of the courses of instruction in any given subject, like the classics, or French, or government, or zoölogy, are matters which may be very advantageously discussed, and in the main decided within the Division or Department which has charge of the subject. While within any Department or Division the desires of the elder men are sure to be much regarded, the younger men also find opportunity to state their hopes and desires openly and distinctly; and as a rule the conflict of wishes and ambitions leads to progress.

The Dean of Harvard College reports every year the number of deaths among the students of the College (p. 106). The death rate is extraordinarily low. Thus, in the year 1895-96 four died out of 1772; in 1896-97 four out of 1754; in 1897-98 four out of 1819; and in the year under review three out of 1851. These facts tend to show that college students are in reality a picked body of youth physically as well as mentally and morally.

The inquirer who seeks in the Dean's tables concerning the admission examinations (p. 109) for evidence of the condition of instruction at the secondary schools in any particular subject,—like Elementary Greek, Elementary Latin, Ancient History, or Elementary Algebra,—or even for evidence concerning the state of instruction in advanced subjects,—like Advanced Latin, Advanced German, or Advanced French,—will find it very difficult to arrive at any satisfactory conclusions, for the reason that the percentages of failure in many of the subjects offered at the admission examinations vary extraordinarily from year to year. When, for example, the percentage of failure in Elementary Greek is in one year about 9, and in the next year about 15; or in Advanced German is in one year about 11, and in the next year about 18½, it is impossible to believe that the schools have deteriorated so much in regard to those subjects in a single year. It seems as



if there must be large variables apart from the quality of the teaching in the schools, as, for instance, a very variable quality in the candidates, or a large variation in the questions set, or in the temper in which the answer papers are read. Probably there are strong variations in all these respects.

The Dean points out (p. 113) that the schools used new definitions of the requirements for admission, offered to candidates for the first time in 1898, much more in 1899 than in the first year, especially in Elementary Latin, Elementary French, history, and geometry. As these new definitions are believed to be a decided improvement on the old, it is matter for congratulation that they have been so promptly accepted by many secondary schools.

One of the best inventions for the promotion and recognition of scholarship made in recent years at Harvard College is the invention of scholarships without stipend. In 1898-99 the number of high scholars with stipend and the number without stipend were precisely the same. As the Dean points out (p. 122), it is not money which chiefly promotes scholarly work among the undergraduates; far the greater part of the good work done in Harvard College is done without the least reference to pecuniary reward. The Dean further takes pains to demonstrate that the competition for scholarships with stipend is keen; that many deserving and needy students fail to win any; and that there is as yet no danger whatever of a superabundance of scholarships in Harvard College.

The Lawrence Scientific School has grown so rapidly that the buildings assigned to it for lecture-rooms, laboratories, and draughting-rooms are completely outgrown. As has already been mentioned, the Corporation are proposing to provide for the urgent needs of the Engineering Department by erecting a large building for its use with a portion of the Henry L. Pierce bequest. To the Department of Mining and Metallurgy has been assigned the brick building on Jarvis Street, erected ten years ago for athletic uses and now known as the Rotch Laboratory. This building is to be equipped with a metallurgical laboratory and a laboratory for ore-dressing, through the liberality of the brothers and sisters of the late John

Simpkins, a Harvard Bachelor of Arts of 1885, who had strong interest in geology and its applications to mining. The department will thus be provided with a spacious and well equipped building. Furthermore the Department of Architecture is to be shortly provided, through gifts for the present anonymous, with a large and beautiful building, well furnished and well endowed; so that the present cramped condition of the Scientific School will soon be remedied.

The degree of Master of Science will soon be sought by a considerable number of persons. It was attainable for the first time in 1898, when it was taken by five competent students who had obtained their earlier degrees at as many different institutions; it was taken in 1899 by six persons. Candidates for this degree register in the Graduate School (compare the Report for 1897-98, p. 98). The degree has for the Bachelor of Science the same advantages which the degree of Master of Arts has for the Bachelor of Arts.

The number of students in the Scientific School continues to increase, but the quality of the students and the organization of the School have improved in a much larger ratio than the numbers. As the Dean mentions (p. 129), the process of raising the requirements for admission has begun without unfavorable effect on the number of candidates admitted. The number of good secondary schools which send their graduates to the School is increasing, and they all support the policy of raising the standard for admission.

The Dean of the Graduate School brings out very clearly (p. 133) the interesting fact that three quarters of the members of that School devote themselves to languages and the moral sciences against one quarter who pursue mathematics and the physical and natural sciences. This fact is entirely in accord with the experience of Harvard College for a generation. Under its free elective system it is the mathematics and the sciences that receive the least attention from the undergraduates. There is no danger in any part of the University that too much attention will be paid to the sciences ordinarily supposed to have useful applications. The problem is to get enough attention paid to them.

The suggestion the Dean makes that scholarships available at Harvard University might well be founded at other American colleges and universities is an interesting and attractive one. Such scholarships would bring able men to Harvard, and would increase good-will and friendly coöperation between the American universities. In Scotch and English institutions there are many examples of useful foundations of this sort.

The increase in the number of College Seniors who, while registered in the College, do the work necessary to attain the degree of Master of Arts (p. 142) is another evidence that large numbers of capable students are practically getting the degree of Bachelor of Arts in three years. The degree of Doctor of Philosophy continues to be in the main a degree taken by young men who propose to be teachers. The Dean points out (p. 146) that the average age of the Masters of Arts is almost exactly twenty-four years, if the men over twenty-eight years old are left out of consideration. This age of Masters accords with the average age of admission to the Freshman Class of Harvard College, which is still deplorably near nineteen. It should be observed, however, that twenty-nine out of ninety-seven men who received the degree of Master of Arts were over twenty-eight. One third of the persons who received the degree of Doctor of Philosophy in 1899 were over twenty-eight. This is a decided improvement over preceding years. The Dean points out, however, that many of the candidates for the degree of Doctor of Philosophy are men who have already held positions as teachers, positions which they relinquish to qualify themselves for rapid advancement or larger fields.

Just at the end of the year 1898-99 eight Austin scholarships for teachers were announced as available for the current academic year. Sixty-five applications for these scholarships were received before the assignments were made. At least twenty similar scholarships for teachers who wish to pursue advanced studies at the University for one year on leave of absence could be made useful at once. This field is a new one.

The President and Fellows have arrived at two settled convictions with regard to the administration of scholarships and other aids for students, whether graduates or undergraduates :

First, they should be really aids, and should not offer complete support; and secondly, they should not be used to detain in the shelter of the University young men who are over twenty-five years of age, and who should be ready for productive and responsible work out in the active world. To the latter rule exceptions may be made in favor of young men whose education has been belated by lack of early opportunity, or who return to the University for a time after having entered on the practice of some profession, as for example teaching.

The interesting event of the year in the Divinity School was the establishment of a Summer School of theology lasting fifteen days, three lectures being given each forenoon with a few lectures of a more general nature in the evening. The twelve instructors were taken from different institutions and different denominations, and the 105 students came from six different denominations, and from seventeen states and the District of Columbia. Eighty-seven of the students were ordained ministers. The departments of instruction represented in this first summer course in theology were the Old Testament, church history, and theology. During the coming summer it is proposed to treat in a similar manner the New Testament, comparative religion, and homiletics. The spirit in which the heterogeneous students met their teachers and each other was delightful; and the attendance was very constant, nearly all the students going to every forenoon lecture in the course.

The Law School, which increased very much in the year 1897-98, made no considerable gain in the year 1898-99. For the current year, however, the number of its students increased by forty-six.

The method of instruction in the School is one better adapted to classes of moderate size than to large classes, because of the discussion which goes on in the lecture-room between the instructor and the students. It is, therefore, interesting to inquire in how many courses the number of students is inexpediently large considering the method of instruction used. Each of the five subjects of the first year



attracts more than 200 students. Five subjects of the second year, namely, Agency, Bills and Notes, Evidence, Property, and Trusts, attract more than 100 students; and one subject in the third year — Corporations — attracts more than 100 students. In the other twenty-eight courses there is no difficulty on the score of numbers. The Faculty is experimenting on means of overcoming the difficulties which arise from too large numbers in the most frequented classes.

The Law Faculty has for several years past objected to the quality of the work done in the Law School by Harvard Seniors on leave of absence who have not completed their work for the degree of Bachelor of Arts. Since the opening of the current year, the Faculty has taken measures to prevent the presence in the School of Harvard Seniors of this sort. This action will tend to compel young men who wish to get the Harvard A.B. and the Harvard LL.B. in six years to complete in the first three years their work for the A.B. and take the degree. This is certainly a desirable consummation.

On the 24th of June, 1899, the following vote was adopted by the Law Faculty, and was later forwarded to the President and Fellows: —

“That the petition of Frances A. Keay, a graduate of Bryn Mawr College, to be admitted as a regular student of the Law School in October, 1899, be not granted; but that the Dean be authorized to inform her that if the Governing Boards of Radcliffe College admit her as a graduate student with a view to her attending this School, she may take the courses and examinations, but, not being a registered member of the School, will not receive the Harvard degree of LL.B.”

The Corporation first considered this subject at their meeting of September 26, 1899, and then voted to communicate to the Board of Overseers for their information the vote of the Law Faculty, together with the following vote which they had received from the Council of Radcliffe College: —

“That the Council is prepared to recommend a candidate for the degree of LL.B. provided the approval of the President and Fellows of Harvard College as Visitors, and the coöperation of the Faculty of the Law School be obtained.”

On the 16th of October following, — that is, not long after the opening of the current academic year, — the President and Fellows adopted the following vote: —



*“Voted, That the President and Fellows are not prepared to admit women to the instruction of the Law School on the plan suggested in the vote of the Faculty of the Law School of June 24, 1899, and the vote of the Council of Radcliffe College of June 26, 1899.”*

This vote also was sent to the Overseers for their information. The Board of Overseers took no action on this subject.

The important event at the Medical School during the year under review was the adoption of a radical rearrangement of the studies of the first two years.

The chief characteristic of the changes made is the massing of the elementary instruction in each subject into half a year. Thus the lectures in anatomy for first-year students occur daily from October through January, with three hours of demonstration daily in October, and dissection with demonstrations and recitations five times a week, three hours a day, in November, December, and January. The anatomical laboratory, not being large enough to receive the whole class at once, the class is divided into two sections, the first section using the laboratory in the morning, the second in the afternoon. The instruction in histology is given in much the same way during the same months, the class being divided into the same two sections, the second section using the histological laboratory in the morning, and the first section in the afternoon. In the second half-year the two subjects which claim the attention of the first-year students are physiology and physiological chemistry, each of these two subjects being taught daily. Under this arrangement the order of studies is greatly improved; for the students may obtain a good knowledge of anatomy and histology before they come to the subject of physiology.

In the first half of the second year the subjects of pathology and bacteriology claim the attention of the student until the month of January, when some variety is introduced by courses on the pathology of the nervous system and on surgical pathology. Only in the second half-year, after all the students have had a thorough training in the fundamental scientific branches, do theory and practice and clinical medicine appear on the tabular view. In that half-year there is a recurrence to anatomy, therapeutics is attacked daily, and clinical chemistry four times a week.

It is obvious that the order of studies under the new arrangement is very much better than under the old; for anatomy, histology, physiology, and chemistry were formerly begun together in the first half of the first year. The results of the experiment of massing all the lectures and laboratory exercises in a fundamental subject into a half-year, and keeping the whole time of the student during that period occupied with two subjects will be of interest not only in the Medical Department, but in many other departments of the University. The preliminary work in preparing this plan was done by a committee of the Medical Faculty called the Committee on Medical Education, and the same Committee has under consideration a rearrangement of the work of the third and fourth years. The changes in the programme of the first two years have already gone into effect, and are giving great satisfaction.

The report of the Dean of the Medical School (p. 175) gives in successive years a list of the medical investigations which have been proceeding in the laboratories of the School. The list is always long and interesting, and the papers enumerated therein are published in various journals as contributions to medical science. They relate chiefly to anatomy, physiology, histology and embryology, bacteriology, medical chemistry, pharmacology, and pathology. The pecuniary resources recently acquired for original research in surgery, and the income of the new Croft Fund, should add considerably to the product of the School in medical research.

There has been an increase during the last five years in the percentage of College graduates among the new matriculants of the School; but in the year under review the percentage of the new matriculants who held a degree in Arts, Letters, or Science was only 42 $\frac{2}{3}$  per cent. Since after the examinations of 1900 the School is to require a previous degree of all new matriculants, there is reason to anticipate a temporary decline after that time in the number of new matriculants. The fact, however, that the entering class is to be exclusively composed of College or Scientific School graduates after the year 1900 may cause some additional resort of such persons to the School for the very reason that it pursues that policy.

Prompt provision needs to be made of new laboratories for several departments of the Medical School, and especially for physiology, histology and embryology, and pathology. If these subjects could be altogether removed from the building on Boylston Street, human anatomy, medical chemistry, and bacteriology might be well accommodated in that building for several years to come. It is, however, a very difficult problem to find a suitable place for these new laboratories, and to obtain the money necessary to build and endow them. A portion of the Medical Faculty advocates the prompt sale of the land and building on Boylston Street and the transfer of the entire School to cheaper land farther from the centre of the city. Another portion of the Faculty believes it inexpedient for the School to abandon its present quarters, which have proved highly satisfactory, until the growth of the School has made the building inadequate. The problem is complicated by new plans for developing instruction in comparative and preventive medicine.

The Dental School does an increasing amount of work for cases which may properly be called surgical (p. 194). The number of cases operated on at Professor Fillebrown's surgical clinic was thirty-three; and the number of splints supplied for fractured jaws was eighty-one. Hare lip and cleft palate were very successfully treated by surgery, as well as by mechanical appliances. In the Mechanical Department much practice-work is done in addition to the actual services rendered to patients.

So far as its annual receipts and expenses are concerned, the School is in a favorable situation, for it has had a surplus of receipts over expenses for several years past; and in 1898-99 this surplus amounted to \$5,797.62.

In respect to a building in which to carry on its work, the School is in a position of considerable difficulty. The laboratories in the North Grove Street building are over-crowded, the lecture-rooms are inadequate, and there is no properly appointed surgical room. Moreover, the North Grove Street building belongs to the Medical School; and an agreement has been already made between the President and Fellows and



the Trustees of the Massachusetts General Hospital for conveying the land and buildings to the Hospital at the price of \$40,000. Whenever the Hospital chooses to take the building, the Dental School will be left without any building in which to carry on its work. The School has received gifts for a building which now amount to \$16,790.14; and it possesses a disposable sum of \$28,397.36, made up of its accumulated annual surpluses. It has also a permanent endowment amounting to \$25,255.85, but only the income of this fund may be expended. Hence, for the purchase of land and the erection of a building it has only about \$45,000 available. On account of the close connection between the Dental School and the Medical School, — a connection which has been made closer during the current year, — it is important that when a new building can be erected for the Dental School it should be placed close to the Medical School, or at least close to that part of the Medical School in which the instruction of the first year is given.

The course of instruction in the Veterinary School was strengthened in 1898-99 for the current year by the adoption of recommendations made by the Faculty that a Demonstrator in anatomy and Instructors in comparative physiology and histology should be appointed, and that special courses in bacteriology, chemistry, and dog practice be added to the instruction heretofore given. In devising these improvements an active part was taken by Professors Bowditch, Whitney, Minot, Ernst, and Theobald Smith of the Medical Faculty, all of whom were members of the Veterinary Faculty.

On the 1st of March, 1899, Dr. Albert J. Sheldon was appointed Surgeon-in-Charge at the Veterinary Hospital; since that time the earnings of the Hospital have materially increased, and its condition has been as good as the size and nature of the building permit. To secure the best results, a hospital for animals should be low, and situated in open grounds; and it should possess the means of thoroughly isolating contagious cases. Taken by itself the Hospital can meet its expenses; but it cannot contribute anything to the support of the School and the Free Clinic.

The time seems to be approaching when the Bussey Institution will need for its own uses the whole of the stone building which stands on the Plain Field (see the Dean's report, p. 205). It is, therefore, all the more desirable that suitable laboratories should shortly be provided for the medical department of comparative pathology, which now occupies a portion of the stone building. Many of the researches in this department are so intimately connected with the welfare of the domestic animals, and particularly of those used as a source of human food, that the department may very properly be provided for on the Bussey estate. Moreover it needs, and indeed is now using, spacious barns and paddocks such as the Bussey estate can permanently supply. The intimate connection of comparative pathology with agriculture has been clearly brought out by the researches and publications of the Department of Agriculture at Washington. The President and Fellows cherish the hope of being able to provide a perfectly equipped laboratory of comparative pathology for Professor Theobald Smith on the Bussey estate by applying a portion of the Henry L. Pierce bequest to this object.

The income of the Institution from the Bussey Trust varies considerably from year to year. Thus, in 1898-99 it was \$2,500 lower than it was in 1897-98, and \$1,000 lower than it was in 1896-97; but other portions of the income increased, particularly the receipts from boarding horses and cattle, chiefly for the State Board of Health, the diphtheria antitoxin being made for that Board at the Bussey Institution.

The advances from the University treasury to the Bussey Trust were decreased by \$25,000 in 1898-99, in consequence of the sale of a small piece of Bussey real estate in Boston. The Woodland Hill Fund was increased by the sale of Bussey land in West Roxbury to the Metropolitan Park Commission for \$9,104.81, from which \$801 was deducted for legal services and taxes.

The Librarian points out that the storage capacity of Gore Hall will shortly be exhausted, and, therefore, that the need of a new reading-room is again urgent, since the present reading-room occupies space intended for stacks. One who watches

the rapid accumulation of books in any large library must long for some means of dividing the books that are used from those that are not used, and for a more compact mode than the iron stacks supply of storing the books that are not used. Although the iron stack was a great improvement on any former method of shelving books in a large library, it still wastes much room, and access to the books that are wanted is made slower and more difficult by the presence on the shelves of a great number of books that are never wanted. The devising of these desirable means of discrimination and of compact storage seems to be the next problem before librarians.

The card catalogues are also reaching a size which greatly impairs their usefulness; and here again means of discrimination between dead books and living books are urgently needed. A library for the use of young students feels the encumbrance of masses of dead books on the shelves, and of useless cards in the catalogue drawers more than any other sort of library; for large bodies of young men in process of education want easy access to many live books in rapid succession, but have small interest in superseded books.

As the Librarian makes plain, the preservation of pamphlets in a great library, in such a way that any one needed can be found, involves endless labor.

Of the 500,000 volumes which make up the University Library at least 60,000 are in buildings which have no claim to be regarded as fireproof, and about 20,000 more are necessarily exposed in laboratory and class-room libraries where there is very imperfect protection from fire. Books which could not easily be replaced are, however, withdrawn from these detached libraries and kept in Gore Hall. It is so desirable to have the replaceable books easily accessible to the students in their several places of daily work, that the risk of their destruction by fire has to be taken.

Considering the large number of persons who have access to the shelves in Gore Hall the number of volumes missed during the last seventeen years is not large, — namely, 742.

The expenditure for books in the College Library and the department libraries has averaged about \$20,000 a year for six years past; and the assignment by the Corporation of



the income of \$100,000 of the Pierce bequest for the purchase of books will probably enable the Library to continue for the present this rate of expenditure. This is an expenditure which will supply from year to year the pressing needs of the teachers and students of the University; but it will not enable the Library to keep up with the printed learning of the world, or even to buy all the publications well known to be very desirable. Indeed, the Library is often quite unable to purchase important works which are costly because of rarity, beauty of illustration, or difficulty of production.

The Library is constantly receiving valuable gifts, as the present report of the Librarian abundantly illustrates. Indeed some of its present embarrassments proceed from the extent and value of the gifts it has received. The gifts are welcome; but the Library lacks adequate means of caring for them.

From year to year the cost of the administration of the Library increases, and yet unaccomplished tasks are always pressing on the members of the staff. In 1898-99 the charges for salaries, wages, repairs and improvements, fuel, lighting, printing, binding, and sundries amounted to \$44,694.51 against \$39,372.68 in the preceding year, \$43,533.59 in 1896-97, and \$36,088.69 in 1895-96. This money is well spent, and under several heads more ought to be expended; but the entire income in 1898-99 from funds for general Library expenses was only \$23,370.63, and the balance had to be paid, as usual, from students' tuition fees in the Department of Arts and Sciences.

The completion of the subscription for the Asa Gray Memorial Fund was fortunately accomplished by June 29, 1899; so that the conditional endowment of \$20,000 for the Asa Gray Professorship of Systematic Botany was also secured. About \$52,500 have thus been added to the permanent funds of the Herbarium. The Curator of the Herbarium, Dr. B. L. Robinson, has since the beginning of the current year been elected to the Asa Gray Professorship of Systematic Botany. There could not be a more appropriate title for the Curator of the Gray Herbarium. Moreover the salary of the Curatorship is thus somewhat increased. More than ninety persons took part

in the subscription for the Asa Gray Memorial Fund; and the subscriptions varied in amount from \$5 to \$10,000.

The income from Asa Gray's copyrights, given by him to the President and Fellows, has fallen off \$1,000 during the past four years, — from \$2,609.62 in 1895-96 to \$1,602.04 in 1898-99. Some decline in the yield of these copyrights, in spite of the thorough revision of several of the books, is probably inevitable. For many years Dr. Gray's works had the school and college field almost to themselves; but now, eleven years after his death, many newer books are competing with them. The fact of the decline supplies another motive for enlarging the endowment of the Herbarium and the Garden.

In consequence of the many duties devolving on Professor Goodale as Director of both the Botanic Garden and the Botanical Museum, Mr. Oakes Ames, A.B. 1898, was appointed Assistant Director of the Botanic Garden in January, 1899. He has already effected valuable improvements in some of the greenhouses, and in the arrangement of plants therein. He hopes to be able to raise at the Garden all the plants and flowers required by the classes in botany both in Harvard College and in Radcliffe College. A large portion of the plants thus used have of late years been raised at the greenhouses of the Bussey Institution and forced into bloom for use by the students in early spring. The University desires to contribute to the proper teaching of botany in the schools of Cambridge and Boston, and is ready to make definite arrangements with schools to supply flowers in large quantities for botanical classes in both cities, either from the Botanic Garden in Cambridge or from the Bussey Institution.

The resources of the Botanic Garden and the Bussey Institution for teaching botany and horticulture are not sufficiently utilized in the summer. The summer course in botany at Cambridge lasts but six weeks, and if an undergraduate takes this summer course, he can only count it towards his degree as a half-course in the technical language of the regulations of the Faculty. The Director of the Garden and the Overseers' Committee to visit the Botanical Department recommend that an arrangement be made by which any undergraduate who takes



the summer course in botany, and then continues his studies in systematic botany independently during the rest of the vacation, and at the beginning of the fall term passes with credit an examination on this work, may count such study as a whole course for his degree. From every point of view this recommendation is a wise one. It is very desirable to encourage young men to utilize the long vacation for a moderate but regular amount of natural history study, or for any sort of field work.

The Ware collection of Blaschka glass models was begun in 1886, in which year the first shipment of models was received in Cambridge. The elder Blaschka died in 1895, and since that date his son, Rudolph Blaschka, has worked alone on this unique collection. Down to July of the present year more than 600 models of plants in flower, and more than 3,000 details of structure and magnified sections have been received. Miss Ware made a contract with the artist in July last for a continuance of his work for the University. This collection unquestionably gives more pleasure to students and visitors than any other belonging to the University. Apart from its beauty it is a very extraordinary demonstration of the wonderful skill which the human eye and hand can attain.

Through the thoughtful generosity of Mr. Elliot C. Lee, son of the late Colonel Henry Lee who was for many years Chairman of the Committee appointed by the Board of Overseers to visit the Botanic Garden, the extensive collection of fossil plants given some years ago to the Botanical Department by Mr. Alexander Agassiz is about to be properly arranged.

The Department owes to Mr. E. F. Atkins, of Belmont, the means of making an interesting research in economic botany. He has supplied the means of sending a Travelling Fellow in economic botany to visit certain stations in the eastern tropics, where experiments in the improvement of the sugar-cane and other economic plants are now in progress. There are many industries which might probably be improved through such studies of their raw materials in different parts of the world.

The Director of the Arnold Arboretum expresses the opinion (p. 244) that what may be called the original construction of

the Arboretum should be essentially finished by January 1, 1901, — that is, by the end of the century. It is, however, an endless task to maintain such an open-air collection in fine condition, and to keep it abreast of the progress of knowledge. Moreover, there should be connected with such a specimen collection of living plants a scientific establishment capable of conducting exploration, research, and publication. These objects are all costly; so that it is not surprising that Professor Sargent, the experienced Director, thinks that an endowment of a million of dollars is needed for the proper development and maintenance of the Arboretum.

The collections are already a source of great pleasure to the public, and of valuable instruction for a few students registered in the Lawrence Scientific School and the Bussey Institution, and for the class, chiefly composed of teachers, which is conducted during the spring months by Mr. J. G. Jack. If, as now seems probable, the subject of Landscape Architecture is taken up in earnest at the Lawrence Scientific School, the resources of the Arboretum will be valuable to the students of that subject.

Boylston Hall received extensive repairs and improvements during the summer of 1899. More space was gained for desks, asphalt floors were laid instead of wooden floors in three rooms, and much of the original wooden furring and lathing of the upper story of the building was removed, with great advantage as regards the risk of fire. The Director, Professor Henry B. Hill, has almost exhausted the possibilities of enlargement and improvement within the building; and as the number of students of Chemistry presses closely on the accommodations which Boylston Hall can afford, the Corporation will soon be forced to decide in what way additional chemical laboratories are to be provided. A low building of a temporary character might, of course, be attached to Boylston Hall; but on account of the conspicuous position of that Hall, the Corporation is very reluctant to resort to that expedient. To make a large addition to Boylston in the general style of the present building would be costly in proportion to the accommodation secured. A third method would be to build laboratories for

the elementary classes in some other place — not in the Yard. Much can be said for this plan on the score of economy in the first construction ; but it might be inconvenient for the teachers of Chemistry to work in two widely separated buildings ; and running expenses in two distinct establishments would probably be in some respects higher than in Boylston Hall enlarged. On the other hand, there are strong arguments in favor of separating completely the laboratory instruction in the elements of any natural science from the advanced laboratory work. In chemistry particularly there would be great gain from separating the beginners from the advanced students. Naturally, the solution of the problem which the Division of Chemistry would prefer is the construction of a new Chemical Laboratory as perfectly equipped as possible, and so planned as to permit of ready enlargement in the future. Boylston Hall could then be turned over to other uses of the Faculty of Arts and Sciences. The only way for the University to obtain such a new laboratory is through the benevolence of a single giver prepared to expend a large sum of money, — say \$350,000.

The report of the Director of the Jefferson Laboratory shows that the usual amount of research was in progress during the whole year in that Laboratory. He also mentions that there was a quick demand for the services of competent teachers of physics both in schools and colleges. This demand indicates that physics is being better taught than it used to be, — that is, taught by the laboratory method and by persons who are themselves experts.

In the President's Report for the year 1897-98 attention was called to the fact that both the elementary and the advanced courses in physics are attended by a comparatively small number of students ; so that many undergraduates go through College without studying physics at all. The Director of the Laboratory gives this year (p. 250) some figures which go to show that in the American universities in general the number of students who engage in the arduous work of physical research is small. The number so engaged at Harvard was above the average number at seven universities.

The director of the Psychological Laboratory reports a steady increase of interest in psychological studies, especially in the higher studies. Fourteen advanced students, beside the instructors, were engaged in psychological researches during 1898-99. An interesting addition to the field of the Laboratory has been made by introducing experiments on the sensations, feelings, memories, instincts, and habits of well-cared-for, normal turtles, newts, frogs, and fishes.

The Director of the Observatory reports (p. 255) that the Harvard Observatory, which in 1892 had the second largest income among the great observatories of the world, in 1898 had only the fifth largest, the observatories at Washington, Paris, Greenwich, and Pulkowa surpassing it in income and expenditure. This fall is occasioned by the decline in the rate of interest on the funds of the Observatory. The Observatory is now so well organized and so active and efficient, that it will be a great pity if its resources, and therefore its powers of usefulness, are permitted to decline. It is the only observatory which maintains a station in the Northern hemisphere and in the Southern; and its collection of photographs of the entire sky gives it unique means of studying the recent history of the stellar universe. The photographic plates are now kept in a fireproof building; but the library of the Observatory, which has become very valuable, is in a wooden building, and is therefore exposed to complete destruction by fire. A fireproof building, which need not cost more than \$15,000 or \$20,000, ought to be provided for the safe keeping of this collection. Four volumes of the *Annals* have been in process of publication during the larger part of the year; and the Director incidentally mentions (p. 264) that more than thirty volumes of the *Annals* have been published during the last twenty years—a rate of publication that is truly astonishing.

On November 28, 1898, Mrs. Williamina Paton Fleming was appointed Curator of Astronomical Photographs, and in that capacity her name appeared in the University Catalogue for 1898-99. It is believed that Mrs. Fleming is the first woman who has held an official position in Harvard University. She is well known to astronomers as the discoverer of a remarkable number of new variable stars.



The Museum of Comparative Zoölogy and the other portions of the University Museum are used more and more by the public and by the departments of zoölogy, geology, geography, botany, and mineralogy. The number of ordinary visitors increases. The resort to the exhibition rooms by school teachers and their classes on Saturdays has been greater during 1898-99 than at any previous time; and the College and Graduate School courses in the natural sciences increase in number and variety.

The President and Fellows provided some additional securities against fire during the year, and employed a night watchman for all the Museums between Oxford Street and Divinity Avenue. The Faculty of the Museum ordered that the building should no longer be opened at night for conferences or other meetings. It would be a decided improvement as regards risk of fire if the boilers now in the basement of the Museum of Comparative Zoölogy were removed to a detached building; and with this object, among others, in view the Corporation may be obliged to consider before long the establishment of one heating plant, or two heating plants, for all the buildings of the University north of Kirkland Street. It would be possible to make two groups of buildings for heating purposes, one east and one west of Oxford Street.

Owing to the absence during a large part of the year of Dr. Agassiz and of Dr. Woodworth, the Assistant-in-Charge of the Museum, some parts of the work of the Museum were reduced or delayed, so that there was a surplus of income for the year amounting to \$8,553.68.

The report of the Assistant-in-Charge (p. 266) records many gifts and profitable exchanges, and many accessions which were the result of explorations and expeditions in which scientists connected with the Museum took part.

It was thought prudent last summer to remove from the Museum the electric power and light machinery necessary for the lathes and stereopticons in the laboratories of mineralogy and petrography. On a level with the basement of the mineralogical section a fireproof brick lean-to was, therefore, built against the present south wall of the Museum, into which lean-to the objectionable machinery was moved. The rock-

cutting machinery was then placed in the basement room adjoining the motor. As the Curator points out (p. 288), "The Petrographic Laboratory has thus completed by successive moves the tour of the whole Museum building."

Dr. A. S. Eakle, Assistant in Mineralogy, has become the American Editor for Groth's "*Zeitschrift für Krystallographie*."

The report of the Curator of the Peabody Museum records many interesting accessions and much scientific activity, in spite of the very inadequate pecuniary resources of the Museum. The growth of the collections is so rapid that an enlargement of the building is urgently needed. The funds applicable to salaries are extremely scanty; so that the work of the Museum could not be carried on, were it not that a few friends of the Museum are in the habit of contributing generously year after year not only to support the explorations and publications of the Museum, but to provide for its ordinary service. The sum total of the funds belonging to the Museum is \$189,955.95, of which sum \$123,195.12 is the endowment provided by Mr. George Peabody. As it is impossible for the University to pay for the whole time of the Curator, he gives half his time to the service of the American Museum of Natural History in New York City. In 1898-99, the College assumed for the first time the payment of the salary of an Instructor in anthropology. The amount of instruction given in connection with the Museum is increasing, and it engages more and more the interest of the students, both graduate and undergraduate.

For several years Mr. Jacob H. Schiff of New York kept standing an offer to give \$25,000 toward the erection of a building for the Semitic collections of the University, provided that an equal sum for this object should be secured from other sources. A time limit for this offer was set at July 1, 1899; through the vigorous efforts of Professor Lyon about \$18,000 had been promised toward the second \$25,000, when Mr. Schiff offered to furnish \$50,000 for the building, provided the other contributors would allow their subscriptions to be used towards purchasing additions to the collections. To this proposal the subscribers all gladly consented; so that \$50,000

are now available for the building, and \$19,240 for the increase of the collections. The subscription list is an interesting one (see the Treasurer's Statement, p. 18). While the list contains several names which are familiar on University subscription lists, it also contains many new names for large or small amounts. It is interesting to see in it the names of two direct descendants of Edward Wigglesworth, who was Hollis Professor of Divinity from 1721 to 1765, and of his son Edward Wigglesworth, who was Hollis Professor of Divinity from 1765 to 1791.

The site of the new building has been selected, and Mr. A. Wadsworth Longfellow is to be its architect. The construction of the building will probably be begun in the coming spring or summer. As soon as the collections can be properly exhibited in the new building, with the additions which the contributions of 1898-99 will provide, it will appear that the University has a large and valuable collection of Semitic objects, capable of greatly interesting the public, and of providing effective illustration for the courses on Semitic literature and history.

The report of the Director of the Fogg Art Museum (p. 283) will be found unusually interesting on account of the valuable additions made to the Museum during the year. The accessions to the collections of photographs and slides were moderate in number; but the total number of photographs has reached 27,370, and of slides 2,141. The Museum has begun to acquire by gift, or on deposit, original works of conspicuous merit — good examples of the various schools of art to which they belong. Mr. E. W. Forbes, A.B. 1895, has deposited with the Museum six such objects of great excellence and high value. A few good additions have been made to the Gray Collection and to the Randall Collection; but for the present the larger part of the income of the funds belonging to these two collections must necessarily be devoted to charges for remounting, arranging, and cataloguing. It is the policy of the University to lend its photographs and slides not only to members of the University for use in instruction, but to teachers in other institutions. As the Gray fund for engravings amounts to only \$16,453.01, and the Randall fund to only

\$32,288.75, it is not possible to buy with the income of these funds year by year many very costly prints. Since, however, the two collections already contain a considerable number of such prints, the best use of the income of the two funds seems to be to substitute gradually better impressions for poorer ones, and to fill gaps in important groups.

For those who believe that mankind has expressed, and will always express, its thoughts and sentiments through music, forms, and colors as well as through written and spoken language, it is interesting to observe the gradual steps by which the study of the fine arts has won a place in the University which the Puritan Colony of Massachusetts Bay founded for the education of its ministers. The first clear recognition of the fine arts in the instruction of the University occurred in 1863, the second year of President Hill's administration, when simultaneously Louis Thies and John Knowles Paine were appointed University Lecturers, Mr. Thies's subject being "Outlines of the history of the arts of design," and Mr. Paine's "On musical form." In the following year William Rimmer was appointed a University Lecturer, his subject being "Art anatomy." Mr. Thies had been appointed Curator of the Gray Collection of Engravings in 1862. In 1870-71 Mr. Charles C. Perkins, as University Lecturer, began to lecture on the history of art, and Mr. John K. Paine on the history of music, and these courses were continued through several years. In 1871-72 Mr. John Lafarge was University Lecturer on composition in art. Mr. Charles Herbert Moore was appointed Instructor in freehand drawing and water color in 1871, and labored steadily in that position till 1879, when he was appointed Instructor in drawing and principles of design. He was made Assistant Professor of Design in the Fine Arts in 1891, and Professor of Art in 1896. The Fogg Art Museum was completed in 1895, and Professor Moore was then appointed its Director. Mr. Paine was appointed Assistant Professor of Music in 1873, and Professor of Music in 1875. Mr. Norton was appointed in 1874 Lecturer on the Fine Arts as connected with Literature, and Professor of the History of Art in 1875. For twenty-one years the Gray Collection of Engravings, which was the first (1858) considerable artistic



possession of the University was lent to the Boston Museum of Fine Arts, — namely, from 1876 to 1897. Instruction in architecture began at the University in 1894, has been rather rapidly developed, and is likely to become a more and more valuable part of University instruction. The next addition to the University's artistic instruction will probably be a course to prepare young men for the profession of landscape architect.

Most of these successive additions to the instruction in the fine arts encountered opposition at the outset from members of the Faculty and of the Governing Boards, and from intelligent and zealous friends of the University; but, so far, every one of the additions has quickly justified itself in the minds of both undergraduates and graduates. The fundamental principle concerning the function of the University in relation to the fine arts seems to be that the ideals of mankind have been and are expressed effectively in song, instrumental music, sculpture, pictures, prints, buildings, utensils, ornaments, and monuments as well as in written or spoken words, and that the history of civilization cannot be understood without a knowledge of the development of the fine arts as well as of literature. There are many periods of history which are better exhibited in their surviving works of art than in their written or printed remains.

The Faculty investigation of the relations of Harvard College to Radcliffe College has already been adverted to. The report of the Dean of Radcliffe College (p. 290) gives the precise facts about the admission of graduate students registered in Radcliffe to courses primarily for graduates in Harvard University. It appears that seventeen students were admitted to ten full courses, and seventeen students to eight half courses. The Dean also presents a striking table showing the increase in the number of students and in the annual amount of tuition fees since the founding of the institution in 1879–80. It is a satisfactory picture of sound development during twenty years.

Tables showing the nature of the diseases which prevailed among the students in Cambridge in each month of the year and the number of days of illness in each month will be found in the Appendix, page 314.

The function of the Medical Visitor is now established as a regular part of the College system ; and there is good reason to believe that it not only secures for the sick student earlier and better treatment than he would otherwise have, but also prevents serious sickness by providing the ignorant student who works to excess, drinks too much tea and coffee, sleeps too little, eats too much, or takes no exercise, with wholesome advice in good season. Dr. George W. Fitz, Assistant Professor of Physiology and Hygiene from September 1, 1894, and the first Medical Visitor, announced to the Corporation on April 24, 1899, that he should not be a candidate for re-appointment in the coming September, since he intended to devote himself to private practice. As Dr. Fitz's department of instruction was a new one in the College, he devised and put into execution its methods ; and he also worked out successfully the plan of medical visitation. Furthermore, he furnished many of the facts which demonstrated the need of an infirmary for Harvard students, and was a member of the first Committee on the construction and organization of the Stillman Infirmary. His name will always be associated with these new and promising undertakings.

The spirit in which intercollegiate sports are conducted has improved of late ; but there is ample room for further improvement. Some players and colleges still seem to think at times that they have something to gain from victory in sports which will compensate for the discredit of violating rules or taking unfair advantages. It is an objection to football that immediate advantage may accrue from violations of rules which the spectators cannot see, or even the umpire detect.

The pecuniary aspects of the sports are not agreeable. More and more thousands of hideous wooden seats in high banks are built every year on Soldier's Field, and more and more gate-money is received. Even the students must pay large entrance fees to see the interesting games. On the other hand, the players think that all their wants as to uniforms and personal services should be liberally supplied from the abundant gate-money.

It is an inadequate offset to these drawbacks that a small portion of the gate-money has been applied for several years to permanent improvements on the Soldier's Field under the skilful direction of Professor Hollis; but the grounds cannot be made beautiful so long as those squalid banks of seats are permitted to deface them.

A novel and interesting research on the physical effects of training was begun in the spring of 1898-99 by Dr. Eugene A. Darling with the coöperation of the crews. Its first results showed conclusively that it ought to be extended and prolonged.

During the summer of 1899 the Bursar's office was removed from the rear of Wadsworth House to the spacious and well-lighted room which makes the first story of the eastern half of Dane Hall. The cost of this improvement in necessary alterations and furniture was \$3,596.09. The new office should suffice for many years to come, even if the present rate of increase in the Cambridge branches of the University should continue. The rooms occupied by the Bursar in the brick ell of Wadsworth House were restored to their former use as students' chambers, and are let for \$450 a year. The Bursar's office had been in that ell since 1868. To make this better provision for the University's principal business office in Cambridge it was necessary to sacrifice one large lecture-room, — the room chiefly used of late years by the Department of Music. This lecture-room was given up with the less regret, because it was so near the very noisy station and switching yard of the Boston Elevated Road in Harvard Square.

Certain definite appropriations of the munificent bequest of Henry Lillie Pierce were determined on by the Corporation during the year 1898-99. The first appropriation made was of the \$50,000 which Mr. Pierce directed should be treated as a permanent fund, the income only to be expended from year to year. This sum was appropriated to the purchase of books for the University Library; and the Corporation added to it from the unrestricted bequest \$50,000 more for the same use. Hereafter, therefore, the income of \$100,000 from the Pierce

bequest will be used in the Library for the purchase of books ; and many hundreds of books will receive every year a book-plate testifying that the University owes them to Mr. Pierce's benefaction. On the whole no more agreeable commemoration of a benefactor of the University than this has ever been devised. Successive generations of students find themselves indebted for books, both old and new, to a benefactor named in the volumes which they use. The fund will also bear his name.

The next appropriations of this great bequest made by vote of the Corporation were two in number. First, \$100,000 was set aside as a permanent fund, the income of which should be used for the salary of the Curator of the Museum of Comparative Zoölogy, if any, the balance to be spent at the discretion of the Faculty of the Museum ; and secondly, \$175,000 for the erection of a building in Cambridge for lecture-rooms, laboratories, and workshops, not only to accommodate the whole Department of Engineering, but also to provide several rooms available for other departments. A site for the building was subsequently assigned on the west side of Oxford Street, opposite the Museum of Comparative Zoölogy. The building will of course bear the name of Henry Lillie Pierce. Plans and specifications were prepared by Messrs. Shaw and Hunnewell in the spring and summer of 1899 in consultation with the Department of Engineering. Unfortunately, during the preparation of the plans the price of building materials rose so much that the Corporation felt obliged to postpone the erection of the building. It will be built at the first favorable opportunity. In the meantime the fund is set aside and interest is allowed on it.

The Corporation also determined on another large use of the Pierce bequest,—namely, for the promotion of instruction in comparative medicine, but in three separate sums, \$100,000 as the foundation of a new professorship to bear his name, \$100,000 for a medical Laboratory building to bear his name, and \$100,000 as an endowment for the Laboratory. The details of this appropriation await, however, the advice of the Faculty of Medicine. The Pierce Laboratory will be built in some part of Boston not yet determined on. This excellent



benefactor of the University will then be ultimately commemorated by two buildings, three permanent funds, and a professorship—all bearing his name—and by thousands of books in the Library. The appropriations thus far made do not exhaust the bequest.

The great bequest of Edward Austin of Boston was paid into the treasury in the spring of 1899,—that is, \$433,500 were paid in, while \$76,500 went to pay the civil and military expenses of the United States Government. Of this bequest \$8,500 go to the Bacteriological Laboratory of the Medical School. The income earned on \$425,000 is to be paid to “needy meritorious students and teachers to assist them in payment of their studies.” This portion of the bequest is, therefore, in the most complete sense an educational charity for the benefit of the present and future generations of students and teachers. If this is not a public object, there are no public objects; and yet fifteen per cent. of this great benefaction from a private fortune is diverted to the ordinary uses of the Government of the United States in meeting its civil and military expenses; or, in other words, \$76,500 devoted by the testator forever to one of the highest permanent public uses is diverted to much lower temporary public uses. The ill-considered legislation which produces such inexpedient results ought to be at once repealed.

With the assistance of the Faculty of Arts and Sciences, regulations were promptly made in June for applying the income of the Edward Austin fund, or the greater part thereof, in a tentative manner to the following purposes during the year 1899–1900: (1) Eight Austin Scholarships of \$250 each for teachers were created, restricted to superintendents of schools and to teachers in secondary schools and colleges who have been recently teaching and intend to return to teaching; (2) eight Austin Teaching Fellowships of \$500 each, the candidates for which should be recommended by the several departments of the Faculty of Arts and Sciences in the same manner as annual instructors and assistants are now recommended; (3) for assisting teachers engaged in medical

investigation \$4,000 were reserved ; (4) one Austin Travelling Fellowship in Architecture with a stipend of \$1,000 was established ; (5) and \$3,000 were appropriated to aid students in the Lawrence Scientific School and Special Students in Harvard College — bodies of students for whom only small beneficiary funds are now available. With the exception of the \$4,000 appropriated for aiding persons engaged in medical research, these appropriations are in use during the current academic year. The rules for the administration of these various aids were formulated by the Faculty of Arts and Sciences in some haste, and were regarded as provisional ; they will doubtless be somewhat modified after an experience of one year in their administration. It will be noticed that the Corporation and the Faculty have endeavored to utilize the Edward Austin income for the benefit both of persons who are strictly students and of persons who may fairly be called teachers, thus following carefully the brief direction given in Mr. Austin's will.

Another very interesting bequest received during the year under review was the bequest of Henry Clarke Warren, the Sanskrit scholar, who had lived for several years on the estate at the corner of Harvard and Quincy Streets, formerly occupied by Dr. Charles Beck, Professor of Latin (1832-1850). He was a man of singular purity and uprightness of character, somewhat withdrawn from the world because of physical infirmities, but possessed of a clear, keen intelligence and much public spirit. He was for many years devoted to Oriental studies. During his lifetime he had already given to the University the estate on the east side of Quincy Street, lying between Broadway and Cambridge Street, and the house on Quincy Street nearest to the house in which he lived. By his will he gave to the University all his real estate in Cambridge, consisting of about 58,500 square feet of land with a house and stable, and also cash and securities amounting to \$144,000, of which \$15,000 is to be applied to the endowment of the University publication called the Harvard Oriental Series, — a publication to which he had himself contributed a valuable volume ; \$10,000 to the

endowment of the Dental School; \$10,000 to the use of the Peabody Museum of American Archaeology and Ethnology at the discretion of the Corporation; and the remainder, \$109,000, for the benefit of the Indo-Iranian, or Sanskrit Department, at the discretion of the Corporation. There is no department of the University which more needs endowment than the Sanskrit department, inasmuch as the number of students in that department is inevitably small. The gifts of Mr. Warren for its use are, therefore, very welcome, and no gifts from him could possibly be more appropriate. The house on Quincy Street will continue to be put to scholarly uses; for it has been assigned to the Sanskrit and Modern Language Divisions for the accommodation of their departmental libraries, and for use as lecture-rooms and reading-rooms. At the opening of the current year, the few necessary changes in it having been completed, the professors and students connected with these departments occupied it with great content. Five departmental libraries have rooms there, and these libraries are supervised by a competent attendant. Mr. Warren left behind an unfinished work of high value, which is to be completed under the care of Professor Lanman and published in the Harvard Oriental Series.

An interesting endowment came into the possession of the Corporation from an anonymous source at the end of January, 1899. Its object was the establishment of a Professorship of Hygiene for the benefit of the students of Harvard College. (See Appendix, p. 312.) The gift amounted to nearly \$156,000; but the whole income of this fund is not yet available. The object of the giver is to provide the students of Harvard College with a medical friend competent to give them the best advice, winning in his nature, and devoting himself chiefly to the physical and moral welfare of the undergraduates at Cambridge. It is the desire of the founder of this professorship that the incumbent should be a man of the best education and of much experience; so that his advice should carry weight with all members of the University. He is not to be a teacher in the ordinary sense of the term, though he may lecture; and

he is not to be professionally connected with the Medical School, though he will be free to undertake hospital service; neither should he have so much practice, whether in consultation or otherwise, that his attention should be much diverted from the body of undergraduates; and inasmuch as his salary under these conditions will be the greater part of his income, the giver of the fund desires that it accumulate until it yield a liberal salary, sufficient to attract to the position a man of high quality.

This gift is one of the most interesting which the University has lately received, and one likely to do much good, first, by informing the prevailing ignorance concerning the means of bodily health; secondly, by checking or preventing reckless exposure to moral and physical evils; and thirdly, by arresting incipient injury through wise and seasonable advice.

Another interesting bequest received during the year was a bequest from the estate of Mrs. Caroline Brewer Croft of \$100,000, less \$7,975, the amount of the legacy taxes paid in England. Mrs. Croft, who was formerly Miss Caroline Brewer, of Boston, had for many years expended the income of \$100,000 on researches for the cure of cancer and other similar diseases. Her will left this large amount of money to two trustees, — Dr. Henry K. Oliver and Dr. J. Collins Warren, both of Boston, — with instructions to expend the income of the fund in prosecuting like researches; but it also provided for the transfer of the fund to the President and Fellows of Harvard College for like uses, in case the two trustees should decline the trust. Drs. Oliver and Warren having declined the trust, the money came into the hands of the President and Fellows. The income is already devoted to the uses prescribed by Mrs. Croft under the direction of a committee consisting of Drs. Oliver, Warren, Henry P. Walcott, and Arthur T. Cabot, the last two being members of the Corporation. The new methods of medical research introduced within the past ten years encourage the hope that means may be found to check the ravages of the terrible diseases which Mrs. Croft has provided the means of studying.



On the death of Miss Lucy Ellis, the bequest of Dr. Calvin Ellis, formerly Professor of Clinical Medicine, became payable to the Treasurer of the University, and the greater part was paid in during the year 1898-99. Securities amounting to \$287,233.70 have already been received from the estate. The income of \$50,000 is to be applied to pay certain expenses of any descendants of David Ellis of Dedham and John Ellis of Walpole who may be students in Harvard College. The income from the remainder of the bequest is to be used (see Appendix, p. 313) to raise the salary of the Professor of Pathology in the Medical School to \$5,000, but not higher; secondly, to raise the salary of the Professor of Physiology to the same sum; thirdly, to raise the salary of the Professor of Anatomy to the same sum,—but all three salaries to be derived from permanent endowments, his own or other; and fourthly, for the Medical Department at the discretion of the President and Fellows. No more interesting or appropriate gift was ever received by the University. Dr. Ellis having been Professor in the Medical School for twenty years, and Dean of the Faculty for fourteen years, had an intimate knowledge of the needs of the School, and of the objects to be gained by promoting medical instruction and research. He was also familiar with the different boards which have influence or control in the University, — with the Corporation, the Overseers, and the Faculties. He, therefore, devoted his property to the use of the Medical Department of Harvard University with full knowledge of all the favorable and adverse chances which might affect the administration of his trust, and its results. He was himself a skilful and high-minded physician, a good teacher, and an efficient administrator; and the Medical School and the University are under the greatest obligations to him for his use of all his influence as Professor and Dean to promote the reform in the Medical School which took place in 1870-71. The Corporation and the Faculty of Medicine will unite in devising lasting and appropriate commemorations of Dr. Ellis in the Medical Department.

On the 12th of December, 1898, Mr. James Stillman of New York City gave to the Corporation \$50,000, wherewith

to build an Infirmary for the use of the University, including in the cost of the Infirmary the purchase of land on which to place it. Mr. Stillman at the same time agreed to contribute at least \$2,500 a year for four years toward defraying the expenses of the Infirmary. An excellent site was secured, and the preparation of plans was at once entered on in consultation with eminent hospital experts. The plans were not finished till summer, when the price of building materials had so risen that the building desired could not be erected for the sum named; thereupon Mr. Stillman doubled his former gift, withdrawing of course his proposition to pay \$2,500 a year for four years towards the maintenance of the Hospital. It is now hoped that the construction of the building may be begun next summer.

The members of the Class of '68 have set a good example by giving \$3,384.71 as a permanent memorial of the thirtieth year since the graduation of the class, to be "applied in aid of a free bed to be designated by the name of the class in the new Infirmary."

The Class of 1851, acting through its Treasurer, Professor Charles F. Dunbar, on the 27th of June, 1899, transferred to the President and Fellows its class fund amounting to \$507.80, on "the understanding that the fund is to be suffered to accumulate until by gift or interest it shall have increased to \$1,000, and that its income is thenceforward to be devoted to the use of the Library." At the same time the Treasurer received through Professor Dunbar an anonymous gift of \$500, on the understanding that this gift is to be allowed to accumulate until it shall amount to \$1,000, when the whole shall then be merged into the fund of the Class of 1851, and be applied to the same use.

The practice of creating a class fund was not well established as early as 1851; but many of the classes in recent years have established, shortly after graduation, class funds of considerable amount. It is obvious that a few years hence the falling in of class funds will constitute an annual item of endowment for the University. It is desirable that a sound use should always

be specified beforehand for a class fund, when it shall come into the possession of the University; and no safer use can be suggested than that which the Class of 1851 has prescribed.

On the 27th of June the Corporation received from an anonymous source a gift of \$100,000 for the erection of a building for the uses of the Department of Architecture, and another gift of \$100,000 for the endowment of that building, the income of the endowment being intended to provide for the running expenses of the building, such as insurance, repairs and renewals, service, and the proper supervision of its draughting-rooms, collections, and library. This is the first time in the history of the University that a new building has been provided with an adequate endowment at the start; and it is believed that the manner of this gift is unique in this country. The department of architecture is only five years old, but is soon to be provided, through this admirable benefaction, with a spacious and appropriate building adequate to the wants of one hundred students. It is to be placed in the north-east corner of the College Yard, at right angles with Sever Hall, with its eastern end near Quincy Street. Its axes will be parallel to the axes of all the buildings in the College Yard. The plans have been prepared by Messrs. McKim, Mead, and White.

In the last annual Report the construction of a dormitory with furnished rooms of moderate size was recommended for the accommodation of students of slender means who proposed to spend only one or two years in Cambridge. As an experiment in this direction, the Corporation ordered, on recommendation of the Faculty of the Divinity School, that twenty rooms in Divinity Hall be furnished with strong and simple furniture, and that there be added to the rent not more than twenty per cent. of the cost of the furnishing. These rooms have all been let for the current year. At the same time, and on the same recommendation, two rooms on the lower floor of Divinity Hall were thrown together and suitably furnished as a Common Room for social purposes. This last

improvement was paid for from the John W. Quimby Fund, which was available for such uses. This Common Room has been in use during the current year, and seems to be valued by the occupants of the Hall.

Intercollegiate debates between Harvard and Yale and Harvard and Princeton have latterly become established as an interesting and valuable stimulus in cultivating the art of debating. The debates are occasions of considerable interest at the several colleges, and are conducted with dignity and vigor. At the same time the local societies for practice in debating have been developed. To encourage the practice of debating, Mr. T. Jefferson Coolidge, on the 27th of March, 1899, gave \$5,000 to the President and Fellows, from the income of which two prizes of equal amount are to be awarded yearly at each of the two sets of trial debates held for the selection of Harvard's representatives in the two intercollegiate contests; but, if at any time one or both of these intercollegiate debates be discontinued, prizes are to be awarded in such manner as the Corporation shall deem for the best interests of debating at the College. If through the efforts of the colleges the art of public discussion could be revived, the proceedings of many public bodies, learned societies, and social clubs in the United States would gradually become much more interesting and instructive than they are now, when the reading of written papers, or so-called speeches, is so much in vogue.

Three years ago the large room on the second floor of University Hall, between the north and south entries, was restored to the original form which Charles Bulfinch, the architect, gave to it, and was assigned to the use of the Faculty of Arts and Sciences. During the last summer vacation the pilasters which originally decorated the east and west walls of this room were restored; and a good system of ventilation was also provided. It is now one of the handsomest and most dignified rooms belonging to the University, and affords a very pleasant memorial of the genius of its designer.



During the summer of 1899 a heating and ventilating system was put into Appleton Chapel by Messrs. Densmore and Le Clair, Engineers, which has proved successful. Warmed air is blown in by a noiseless fan at several well-distributed points from ten to twenty feet above the floor, and the used air is drawn out by another noiseless fan from numerous small registers placed under the pews. The volume of air blown in and its temperature can be perfectly controlled, and the volume drawn out is also under control. Electric lights were put in at the same time. The result is that with a thousand persons in the chapel for an hour, or an hour and a half, the air remains fresh, and its temperature does not rise, the outgoing air being ordinarily a degree or two cooler than the inflowing.

The gifts of the year 1898-99 were extraordinary in amount and variety. A complete list of them will be found in the Treasurer's Statement, pages 10 to 19. The amount of the gifts to form new funds or increase old ones was \$1,383,460.77, and the amount of gifts for immediate use was \$161,368.90, making the total amount of gifts for the year \$1,544,829.67. A few of the gifts were large in amount, — such as the Austin, Croft, Warren, and Calvin Ellis bequests, and the gifts for a building for the department of architecture. But there were a multitude of small gifts also, especially in the subscriptions for the Asa Gray Memorial Fund, the Free Clinic for Animals, the Germanic Museum, and the Semitic Museum. The objects of these numerous gifts are very various; but all are good and useful objects.

The year was also a favorable one in regard to the rate of interest on the funds invested together as a whole, this rate having been 4.59 per cent. Five of the departments of the University had surpluses of receipts over expenditures, and four had deficits; and the sum of the deficits exceeded the sum of the surpluses by nearly \$20,000. The largest deficit was in the account called University, College, Scientific School, and Library, the deficit being caused by the heavy cost of putting bathrooms into all the dormitories in the College Yard and into College House, and of improving the heating and venti-

lation of Harvard and Massachusetts Halls, and the ventilation of Gore Hall. Repeated deficits in this account have now reduced the unappropriated balance called the Stock Account from \$197,034.48, at which amount it stood in 1869, to \$24,971.16. The gradual consumption of this unrestricted fund in thirty years is much to be regretted; but it has really been paid out for improvements in the public buildings and dormitories at Cambridge, improvements which the rising scale of comfort and sanitation in the community at large has compelled the Corporation to adopt. Fortunately the Corporation have acquired within this period a considerable number of other funds which are unrestricted as regards both principal and interest.

The attention of the Overseers is respectfully invited to the following reports by the Deans of the Faculties and Schools, and the Directors of the scientific establishments. They will be found to contain not only masses of facts in great variety, but also independent discussions of administrative measures and academic policies.

CHARLES W. ELIOT, *President.*

CAMBRIDGE, 5 January, 1900.

## REPORTS OF DEPARTMENTS.

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### THE FACULTY OF ARTS AND SCIENCES.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — As Dean of the Faculty of Arts and Sciences I have the honor to present the following report for the academic year 1898–99. The year was a busy one for the Faculty, and a number of important questions were disposed of, some of them questions which had been left over from the preceding year. Foremost among these was the question of the requirements for admission to Harvard College, on which, after three years of earnest discussion, a conclusion was finally reached. Closely related to this in its effect on the future College course is the requirement in English Composition, both in preparation for college, and in college; and in this matter important steps were taken, looking to the eventual transfer of the whole of this requirement to the schools. Other subjects in which the Faculty took important action were the administration of the Bowdoin prizes and the relations of the Faculty with Radcliffe College; and near the close of the year the Faculty was called upon to formulate rules for the distribution of that portion of the income of the great Austin bequest which has been assigned by the President and Fellows to the departments under its care. Of these and of the minor topics that engaged the Faculty's attention I shall leave such as more nearly concern the several departments to the Deans of those departments for such report as they may see fit to make, and confine myself in this report to those that are of more general interest.

#### *Instruction given in 1898–99.*

The following list includes all the courses of instruction that were *actually given* under the authority of the Faculty in 1898–99, with the name of the instructor and the number of students of various classes and departments in each course. This list differs from the

one published in the Catalogue for 1898-99 in some details, and in omitting such courses as were withdrawn, because not taken by a sufficient number of competent students or for other reasons.

I have undertaken this year to present more fully than heretofore the methods of instruction and of study pursued in the several courses. The account is not quite complete, as in the case of a few courses I was unable to obtain the requisite information, owing to the absence of the instructor or to some other cause; but it is sufficiently complete to give a correct idea of the methods now in use with us, and as such will well repay examination. Perhaps the most striking and interesting fact revealed by it is the very slight headway which the pure lecture system of instruction has made among us, even in the more advanced courses.

Courses of Instruction are classed as *full courses* or *half-courses*, according to the estimated amount of work in each, and its value in fulfilling the requirements for a degree. Half-courses are designated in the following list by the abbreviation *hf.* All others are full courses with the exception of German *B*, which counts for a course and a half. In the 'courses of research,' however, the work of a particular student is sometimes increased by special arrangement so that the course counts for him as the equivalent of two, three, or four courses. The figure 1 or 2, attached like an exponent to the number or letter of a course, indicates that the course was given in the first or in the second half-year only. Courses not so designated extended through the year. A double dagger (‡) indicates that the course was open, under certain conditions, to properly qualified students of Radcliffe College. The number of hours of lectures or other class exercises stated for each course means hours *per week* for each student; the number of themes and other individual performances is the number required in the entire course.

The following abbreviations are used to designate the classes of students in the several courses:—Gr. for Graduate Student; Se. for Senior; Ju. for Junior; So. for Sophomore; Fr. for Freshman; Sp. for Special Student of Harvard College; Sc. for Scientific Student; Di. for Divinity Student; Law for Law Student; Me. for Medical Student; Bu. for Bussey Student; R. for Radcliffe Student.



## COURSES OF INSTRUCTION GIVEN IN 1898-99.

## Semitic Languages and History.

*For Undergraduates and Graduates:—*

1. Professor LYON.—Hebrew. Mitchell's Hebrew Lessons. Explanation of parts of Genesis and of the Psalm-book. Recitations (3 hours) and written exercises. 1 Se., 1 So., 3 Di. Total 5.
- 6 hf. Professor LYON.—Babylonian-Assyrian History. Contact of the Babylonians and Assyrians with the peoples of the Mediterranean coasts and islands; diffusion of the Babylonian-Assyrian culture through the medium of the Phoenicians. Lectures (1 hour); 6 reports; thesis. 1 Gr., 5 Se., 4 So., 2 Sc. Total 12.
12. Professor LYON.—History of Israel, political and social, till the death of Herod the Great. Lectures (3 hours); 3 reports; 2 theses. 23 Se., 14 Ju., 17 So., 3 Fr., 2 Sc., 3 Di. Total 62.
- 16<sup>1</sup>. Professor TOY.—History of pre-Christian Hebrew Literature. Lectures and recitations (2 hours); weekly reports; thesis. 2 Ju., 1 So., 2 Sp., 3 Di., 1 Law. Total 9.
13. Professor TOY.—History of the Hebrew Religion, with comparison of other Semitic religions. Lectures (2 hours); weekly reports; thesis. 1 Se., 5 Di. Total 6.
- 14 hf. Professor TOY.—History of the Spanish Califate. The Korān. Lectures (1 hour); weekly reports; thesis. 1 Gr., 3 Ju., 2 So., 1 Fr., 1 Sp. Total 8.

*Primarily for Graduates:—*

- ‡2. Professor TOY.—Hebrew (second course). Syntax; interpretation of parts of the Prophets and the Poetical Books; criticism of selected portions of the text. Recitations (2 hours); theses. 2 Di. Total 2.
- ‡4. Professor LYON.—Assyrian. Lyon's Assyrian Manual; Delitzsch's Assyrian Grammar; Abel and Winckler's Keilschrifttexte. Recitations and practical exercises (2 hours). 1 Gr., 2 Sp. Total 3.
- ‡7. Professor TOY.—Arabic. Lansing's Manual; Nuhab al-Mulah; The Thousand and One Nights. Recitations (2 hours); weekly reports. 2 Sp. Total 2.

## Egyptology.

- 1<sup>2</sup> hf. Mr. LYTHERGEE.—Egyptian Archaeology. Lectures (2 hours) and collateral reading; conferences (weekly); 1 report. 11 Se., 5 Ju., 12 So., 2 Fr., 4 Sp., 1 Sc. Total 35.

## Indo-Iranian Languages.

*For Undergraduates and Graduates:—*

- 1<sup>1</sup> hf. Professor LANMAN.—Elements of the Sanskrit language. Easy prose and verse. Recitations (3 hours). 3 Gr., 1 Se., 2 Ju., 1 So. Total 7.

- 1<sup>2</sup> hf. Professor LANMAN. — Sanskrit (continued). Reading of classical texts from Hitopadeṣa and Kathā-sarit-sāgara; reading at sight. Recitations (3 hours). 2 Gr., 1 Se., 1 Jn. Total 4.

*Primarily for Graduates : —*

- ‡4<sup>1</sup> hf. Professor LANMAN. — Pāli. The Buddha legend. Recitations (3 hours). 1 Sp. Total 1.

### Classical Philology.

*Primarily for Undergraduates : —*

#### GREEK.

INTRODUCTORY LECTURES provided for the students in Courses *B* and *C*.

Mr. HARRIS. — Lysias and his Times.

Professor GOODWIN. — Socrates and Plato.

Dr. GULICK. — The Elegiac, Iambic, and Lyric Poets.

Professor WHITE. — The Greek Theatre.

Professor WRIGHT. — Dramatic Performances.

- A. Mr. HARRIS — Homer (Iliad and Odyssey, selections). Recitations, readings, and lectures (3 hours). 1 Se., 2 So., 15 Fr., 5 Sp. Total 23.
- F hf. Mr. HARRIS. — Greek Prose Composition (elementary course). 1½ hours. 5 So., 5 Fr. Total 10.
- B. Professor WRIGHT, Dr. GULICK, and Mr. HARRIS. — Greek Literature. Lysias (selections); Plato (Apology and Crito); Elegiac, Iambic, and Lyric Poetry (selections); Euripides (Medea). Reading at sight; written translations in prose and verse. Recitations and lectures (3 hours). 1 Gr., 1 Se., 2 So., 28 Fr. Total 32.
- C. Professor WRIGHT, Dr. GULICK, and Mr. HARRIS. — Greek Literature. Lysias (selections); Plato (Apology and Euthyphro); Elegiac, Iambic, and Lyric Poetry (selections); Euripides (Iphigenia among the Taurians). Reading at sight; written translations in prose and verse. Recitations and lectures (3 hours). 2 sections. 4 So., 42 Fr. Total 46.
- E hf. Dr. GULICK. — Greek Prose Composition (second course). Translation into Greek, with study of Goodwin's Moods and Tenses. 1½ hours. 1 Se., 2 So., 8 Fr. Total 11.
2. Asst. Professor CLIFFORD H. MOORE and Dr. GULICK. — Greek Literature. Aristophanes (Birds); Aeschylus (Prometheus Bound); Thucydides (Book I); Sophocles (Oedipus Tyrannus); Collateral reading of the Plutus of Aristophanes. Reading at sight. Recitations and lectures (3 hours). 1 Se., 1 Ju., 31 So. Total 23.
- 3 hf. Asst. Professor C. P. PARKER. — Greek Prose Composition (third course). Translation and original composition (narrative and descriptive). Lectures and conferences (2 hours). 1 Gr., 1 Se., 3 Ju., 10 So. Total 15.

#### LATIN.

INTRODUCTORY LECTURES provided for the students in Courses *B* and *C*.

Asst. Professor MORGAN. — Livy.

Asst. Professor CLIFFORD H. MOORE. — Books and Methods of Publication in Ancient Rome.

Dr. MANNING.—The Roman Theatre.

Asst. Professor HOWARD.—The Metrical and Musical Element in Roman Comedy.

A. Dr. MANNING.—Cicero (selected speeches); Virgil. Reading at sight. Recitations (3 hours). 1 Se., 2 So., 11 Fr., 8 Sp. Total 22.

F hf. Dr. MANNING.—Latin Composition (elementary course). 1½ hours. 1 Gr., 1 Ju., 1 So., 4 Fr. Total 7.

B. Asst. Professors C. P. PARKER, HOWARD, and CLIFFORD H. MOORE, and Dr. MANNING.—Latin Literature. Livy (selections from Books XXI and XXII); selections from Lyric, Elegiac, and Iambic Poetry; Terence (Phormio and Heautontimorumenos). Oral and written translations; reading at sight. Recitations and lectures (3 hours). 2 sections. 2 So., 38 Fr., 2 Sp. Total 41.

C. Asst. Professors C. P. PARKER, HOWARD, and CLIFFORD H. MOORE, and Dr. MANNING.—Latin Literature. Livy (Book I); selections from Lyric, Elegiac, and Iambic Poetry; Terence (Phormio and Andria). Oral and written translations; reading at sight. Recitations and lectures (3 hours). 4 sections. 10 So., 101 Fr. Total 111.

E hf. Dr. MANNING.—Latin Composition (second course). Translation of English narrative. Lane's Latin Grammar. 1½ hours. 3 So., 11 Fr. Total 14.

1. Asst. Professor MORGAN.—Latin Literature. Horace (Odes and Epodes); Tacitus (selections from the Annals). Recitations and lectures (3 hours). 1 Gr., 2 Ju., 25 So., 1 Fr. Total 29.

2. Asst. Professor CLIFFORD H. MOORE.—Latin Literature. Tacitus (selections from the Histories); Horace (Odes and Epodes). Recitations and lectures (3 hours). 3 Se., 2 Ju., 22 So. Total 27.

3 hf. Asst. Professor C. P. PARKER.—Latin Composition (third course). Extended study of idiom; practice in translation. Lectures and conferences (2 hours). 1 Gr., 3 Se., 4 Ju., 12 So., 1 Sp. Total 21.

*For Undergraduates and Graduates:—*

GREEK.

6. Professor WRIGHT.—Greek Literature. Demosthenes (On the Crown, with parts of the Oration on the Embassy); Aeschines (Against Ctesiphon); Aeschylus (Seven against Thebes); Sophocles (Antigone); Aristophanes (Frogs). Lectures and collateral reading (3 hours); 4 reports or theses. 6 Gr., 1 Se., 9 Ju., 1 So., 1 Sp. Total 18.

4<sup>1</sup> hf. Dr. BOTSFORD.—The History of Herodotus. Lectures (3 hours). 2 Gr., 2 Se., 3 So., 1 Sp. Total 8.

7 hf. Professor WRIGHT.—Greek Prose Composition (fourth course). Written composition in the style of Demosthenes and of Plato, with studies of classical models. Translations of selections of standard English (rhetorical and philosophical). Conferences (1 hour). 7 Gr., 4 Se., 3 Ju. Total 14.

8. Professor GOODWIN. — Greek Philosophy. Plato (Republic). Aristotle (Ethics, Books I–IV and X). Lectures, 3 hours.  
14 Gr., 10 Se., 3 Ju., 1 Sp. Total 28.
10. Professor WHITE. — The Life of the Ancient Athenians, described and illustrated by the aid of the Literature and of the Monuments. Lectures, with stereopticon illustrations (2 or 3 hours). 2 theses.  
14 Gr., 38 Se., 25 Ju., 20 So., 4 Sp., 13 Sc., 2 Law Total 116.
- 11 *hf*. Professor WHITE. — History of the Greek Drama. Lectures and conferences (1½ hours) on the dramatic art and literature of the Greeks, with collateral reading and study of representative plays.  
12 Gr., 16 Se., 10 Ju., 10 So., 1 Fr., 2 Sp. Total 51

## LATIN.

6. Asst. Professor HOWARD. — Latin Literature. Suetonius (selections); Pliny (selected Letters); Juvenal (the principal Satires); Martial (selected Epigrams). Lectures and occasional recitations. 3 hours.  
6 Gr., 1 Se., 9 Ju., 1 So., 1 Sp. Total 18.
- 7 *hf*. Professor GREENOUGH. — Latin Composition. Practice in Latin expression and style (narrative and descriptive). Translation of contemporary English prose; original compositions. Individual instruction. 1 hour.  
5 Gr., 3 Se., 3 Ju. Total 11.
8. Professor GREENOUGH. — Latin Literature. Plautus (Rudens, Trinummus, Captivi); Lucretius (Book I and selections from Books II–VI); Horace (Satires). Lectures, oral and written translations, and translation at sight. 3 hours.  
4 Gr., 7 Se., 2 Ju., 1 So., 1 Sp. Total 15.
- 9 *hf*. Professor GREENOUGH. — Latin Composition. Practice in Latin expression and style (exposition and argument). Translation of contemporary English prose; original essays. Individual instruction. 1 hour.  
1 Gr. Total 1
15. Asst. Professor MORGAN and Professor MARSH. — The Works of Virgil, with studies of his Sources and of his Literary Influence from his own times to the Renaissance. Lectures and recitations; written reports and translations. 3 hours.  
8 Gr., 4 Se., 5 Ju. Total 17.
11. Professor SMITH. — History of Latin Literature (Poetry). Lectures, with reading of characteristic selections (3 hours), and direction of the students' private reading; reports on reading.  
13 Gr., 1 Se. Total 14.

*Primarily for Graduates: —*

## CLASSICAL PHILOLOGY.

- 25 *hf*. Dr. GULICK. — Introductory Course in the Text-Criticism and Interpretation of Classical Authors: for 1898–99, Homer (Iliad VIII). Discussions (1½ hours). Thesis.  
9 Gr. Total 9.
- ‡62<sup>2</sup> *hf*. Mr. HARRIS. — Homer. Rapid reading and interpretation of the Iliad, mostly by the instructor (3 hours). Written translation of one book by each student.  
3 Gr., 1 Se., 1 Ju. Total 5



38. Professor WHITE.—The Comedies of Aristophanes. Lectures, with reading of all the plays and the fragments (3 hours). Minute study of one play by each student. 18 Gr., 1 Se., 1 Sp. Total 20.
- †54. Asst. Professor ROPES.—The Acts of the Apostles. Lectures (2 hours); 3 reports. 2 Gr., 1 R. Total 3.
- 45<sup>2</sup> hf. Asst. Professor MORGAN.—The early career of Cicero, from its outset to the end of the prosecution of Verres. Lectures and reading of the orations (3 hours); 3 reports. 9 Gr., 1 Se., 1 Ju. Total 11.
- 41<sup>1</sup> hf. Professor SMITH.—Cicero's Correspondence from the earliest extant letters to the time of his banishment. Reading and discussion (3 hours); thesis. 2 Gr., 1 Se., 1 R. Total 4.
- 61<sup>1</sup> hf. Dr. MANNING.—Studies in the Life and Times of Ovid as illustrated in his works. Recitations (3 hours); written translations. 4 Gr., 2 Se. Total 6.
- †21<sup>1</sup> hf. Professor WRIGHT.—Introduction to Greek Epigraphy. Lectures and practical exercises (2 hours); 6 reports. 10 Gr. Total 10.
- 22<sup>1</sup> hf. Professor GREENOUGH.—Latin Grammar (sounds and inflections.) Lectures (3 hours); investigation of special topics. 3 Gr., 1 Se. Total 4.
- †63<sup>2</sup> hf. Professor SMITH.—Introduction to Latin Epigraphy. Lectures and practical exercises, oral and written (2 hours); prescribed reading. 10 Gr., 1 R. Total 11.
- 29<sup>2</sup> hf. Asst. Professor CLIFFORD H. MOORE.—The Religion and Worship of the Greeks. Lectures and conferences (2 or 3 hours); report and thesis. 10 Gr. Total 10.
- 32<sup>1</sup> hf. Asst. Professor CLIFFORD H. MOORE.—The Religion and Worship of the Romans. Lectures and conferences (2 or 3 hours); report and thesis. 5 Gr. Total 5.
51. Asst. Professor HOWARD.—Roman Political and Legal Antiquities. Lectures (3 hours); reports. 2 Gr. Total 2.
- 26<sup>2</sup> hf. Professor GREENOUGH.—The Private Life of the Romans (second course). Investigation of special topics; theses. 3 hours. 5 Gr., 1 Se., 1 So. Total 7.
- †64 hf. Professor WRIGHT.—Studies in Classical Archaeology and Art (second course). A course of research, chiefly in the Literary and Epigraphic History of Greek and Graeco-Roman Art. Reports and conferences (weekly); two theses. 2 Gr., 1 R. Total 3.

## 20. THE SEMINARY OF CLASSICAL PHILOLOGY.

Professor GOODWIN and Asst. Professor MORGAN, Directors for 1898-99.—Training in philological criticism and research. Text-criticism and interpretation of Greek and Latin authors; for 1898-99, Aeschylus (Agamemnon) and Terence (Phormio). Discussion of theses (one by each student). 3 hours. 10 Gr. Total 10.

## English.

*Primarily for Undergraduates:—*

*A.* Professors A. S. HILL and BRIGGS, and Messrs. HURLBUT, COPELAND, F. N. ROBINSON, COBB, SCHOFIELD, J. G. HART, T. HALL, LA ROSE, SHEFFIELD, and CURTIS.—Rhetoric and English Composition. A. S. Hill's Principles of Rhetoric. Lectures, recitations, written exercises, and conferences. 1 hour in six sections and 2 hours in eighteen sections. The course was under the general direction of Mr. HURLBUT.

1 Ju., 3 So., 356 Fr., 61 Sp., 132 Sc. Total 553.

*B hf.* Mr. YOUNG.—English Composition. Twelve Themes. Lectures (1 hour) and discussions of themes (2½ hours). 2 sections.

2 Ju., 43 So., 17 Fr., 4 Sp., 2 Sc. Total 68.

*Chf.* Asst. Professor BAKER, and Messrs. T. HALL, PRESCOTT, and THOMAS.—English Composition. Forensics. A brief based on a masterpiece of argumentative composition. Three forensics, preceded by briefs. Lectures (2 hours until Christmas), class-work (8 exercises), and conferences (1 hour). 6 sections.

41 Se., 213 Ju., 63 So., 5 Sp., 8 Sc., 1 Me. Total 331.

*BC hf.* Messrs. HURLBUT and T. HALL.—English composition. Lectures (1 hour), written exercises (75 daily themes, 5 longer themes, 1 thesis), and weekly conferences.

1 Fr., 65 Sc. Total 66.

31. Messrs. LA ROSE and CUNNIFF.—English Composition. Reading and criticism of English authors; lectures (2 hours); written exercises (170 daily themes and 14 longer themes); fortnightly conferences.

1 Se., 6 Ju., 62 So., 26 Fr., 7 Sp., 14 Sc. Total 116.

22. Professor WENDELL, and Messrs. MAYNADIER, COBB, MASON, and FISHER.—English Composition. Lectures (2 hours) and conferences. Daily themes; longer fortnightly themes, first half-year; a long essay, second half-year. 4 Gr., 2 Se., 2 Ju., 250 So., 39 Fr., 27 Sp., 6 Sc. Total 330.

28 *hf.* Professors A. S. HILL, BRIGGS, WENDELL, and KITTREDGE, and Mr. J. G. HART.—English Literature. History and Development of English Literature in outline. Lectures (2 hours) and conferences (2 hours); 22 reports.

135 Fr., 22 Sp. Total 157.

18. Asst. Professor BAKER and Mr. T. HALL.—Expository and Argumentative Composition. Lectures (3 hours); 18 written exercises in class room; 5 forensics; conferences. 2 Gr., 2 Se., 31 Ju., 11 So., 6 Sp. Total 52.

30. Asst. Professor BAKER and Messrs. HAYES and PRESCOTT.—Forensics and Debating. Two forensics; 3 debates, as principal speaker, and 6 short speeches from the floor, for each student; 6 briefs. 3 hours till Nov. 15; after that date 5 hours.

4 Se., 40 Ju., 5 So., 4 Sp., 1 Sc., 2 Law. Total 56.

6 *hf.* Professors TAUSSIG and HART, Asst. Professors CUMMINGS and BAKER, and Mr. HAYES, assisted by Mr. PRESCOTT.—Oral Discussion of topics in History and Economics. Debates, with briefs submitted in advance. 2 hours. 2 sections.

2 Gr., 24 Se., 1 Ju., 1 Sp., 4 Law. Total 32.

10 *hf.* Mr. HAYES. — Elocution. 2 hours.

22 Se., 58 Ju., 18 So., 4 Sp., 2 Sc. Total 104.

3<sup>1</sup> *hf.* Dr. GARRETT. — Anglo-Saxon. Bright's Anglo-Saxon Reader. Recitations, with occasional lectures (3 hours).

12 Gr., 4 Se., 3 Ju., 1 So., 2 Sp. Total 22.

*For Undergraduates and Graduates: —*

1. Professor KITTREDGE and Dr. GARRETT. — English Literature. Chaucer. Lectures and recitations (3 hours).

8 Gr., 8 Se., 3 Ju., 2 So., 1 Sp. Total 22.

2. Professor KITTREDGE. — English Literature. Shakspeare (six plays). Lectures and recitations (3 hours).

16 Gr., 37 Se., 25 Ju., 19 So., 1 Fr., 5 Sp. Total 103.

11<sup>1</sup> *hf.* Dr. F. N. ROBINSON. — English Literature. Bacon. Recitations and lectures (3 hours); 1 report. 8 Gr., 13 Se., 6 Ju., 4 So. Total 31.

11<sup>2</sup> *hf.* Professor KITTREDGE. — English Literature. Milton. Lectures and recitations (3 hours). 7 Gr., 10 Se., 12 Ju., 8 So., 2 Sp. Total 39.

32<sup>1</sup> *hf.* Dr. GARRETT and Mr. CUNIFF. — English Literature of the Elizabethan Period (from Tottel's Miscellany to the death of Spenser, 1557-1599). Lectures (2 hours); 14 reports or 3 theses.

11 Gr., 44 Se., 9 Ju., 26 So., 10 Sp., 2 Sc., 3 Law. Total 105.

32<sup>2</sup> *hf.* Mr. GARDINER and Mr. CUNIFF. — English Literature, from the death of Spenser to the closing of the Theatres, 1599-1642. Lectures (2 hours); 15 reports or 3 theses.

9 Gr., 23 Se., 11 Ju., 31 So., 2 Fr., 10 Sp., 3 Sc., 1 Law. Total 90.

7<sup>1</sup> *hf.* Asst. Professor GATES and Mr. MAYNADIER. — English Literature of the Period of Queen Anne (from the death of Dryden to the death of Swift, 1700-1745). Lectures (2 hours); 12 reports.

16 Gr., 59 Se., 35 Ju., 37 So., 2 Fr., 8 Sp., 2 Sc., 9 Law. Total 168.

7<sup>2</sup> *hf.* Mr. COPELAND and Mr. FISHER. — English Literature, from the death of Swift to the publication of the Lyrical Ballads (1745-1798). Lectures (2 hours) and conferences; 10 reports or theses.

11 Gr., 65 Se., 46 Ju., 56 So., 12 Fr., 10 Sp., 8 Sc., 2 Law. Total 210.

8 *hf.* Professor WENDELL and Mr. YOUNG. — English Literature, from the publication of the Lyrical Ballads to the death of Scott (1798-1832). Lectures (1 hour) and weekly reports.

12 Gr., 46 Se., 65 Ju., 75 So., 9 Fr., 10 Sp., 6 Sc. Total 223.

33<sup>2</sup> *hf.* Professor WENDELL. — English Literature. Literary History of America. Lectures (3 hours).

5 Gr., 35 Se., 25 Ju., 7 So., 1 Fr., 5 Sp., 1 Sc. Total 79.

12. Mr. GARDINER. — English Composition and the historical development of English Prose style. Lectures (2 hours) and conferences; practical exercises (6 themes and an essay or story); semi-weekly reports; two short theses

8 Gr., 5 Se., 6 Ju., 4 So. Total 23.

*Primarily for Graduates:—*

- 3<sup>2</sup> *hf.* Dr. GARRETT. — Anglo-Saxon. Béowulf. Recitations and lectures (3 hours). 12 Gr., 2 Se., 1 Sp. Total 15.
4. Drs. GARRETT and F. N. ROBINSON. — Early English. English Literature from 1200 to 1450. Mätzner's Altenglische Sprachproben. Recitations and lectures (3 hours); reports and theses. 5 Gr., 1 Se. Total 6.
- 21<sup>2</sup> *hf.* Professor KITTREDGE. — Early English. The Metrical Romances. Seminary work (3 hours). 3 Gr. Total 3.
- 17<sup>1</sup> *hf.* Mr. FLETCHER. — The Literary Relations of England and the Continent in the Sixteenth Century. Lectures (3 hours), conferences, and reports; thesis. 4 Gr., 3 Se. Total 7.
14. Asst. Professor BAKER. — English Literature. The Drama, from the Miracle Plays to 1642, with special study of Shakspeare. Lectures (3 hours) and conferences; reports (weekly, first half-year); thesis. 11 Gr., 4 Se. Total 15.
- 9<sup>2</sup> *hf.* Mr. FLETCHER. — English Literature. Spenser. Lectures and reports (3 hours); conferences; thesis. 2 Gr., 1 Se., 1 Ju. Total 4.
- 24<sup>1</sup> *hf.* Professor A. S. HILL. — Studies in the Poetry of the Nineteenth Century. Lectures and conferences (3 hours); thesis. 8 Gr., 12 Se., 2 Ju., 1 Sp., 1 Law. Total 24.
- 5<sup>1</sup> *hf.* Professor A. S. HILL. — English Composition (advanced course). Lectures and conferences (3 hours); daily writing; 10 themes. 7 Gr., 9 Se., 1 Sp., 1 Di. Total 18.
- 5<sup>2</sup> *hf.* Professor A. S. HILL. — English Composition and Literature. Studies in modern English Prose. Lectures and conferences (3 hours); 10 themes. 7 Gr., 10 Se., 2 Sp., 1 Di. Total 20.
20. Asst. Professor BAKER. — Special Research in the Elizabethan Drama. 1 Gr., 1 Se. Total 2.
- 20*b*. Mr. FLETCHER. — English Literature in its relation to Continental Literature in the Sixteenth Century. Conferences; thesis. 2 Gr. Total 2.

## Germanic Languages and Literatures

## GERMAN.

*Primarily for Undergraduates:—*

- A. Mr. NICHOLS, Dr. BIERWIRTH, Dr. POLL, and Messrs. W. G. HOWARD, COAR, and HOWE. — Elementary Course. Grammar; translation from German into English, with elementary exercises in translating into German. Recitations. 3 hours. 9 sections. 2 Gr., 1 Ju., 2 So., 148 Fr., 17 Sp., 76 Se. Total 246.
- B. Dr. POLL. — Elementary Course. Grammar; composition; translation and reading at sight. Selections in prose and poetry. Recitations. 5 hours. 1 Gr., 2 So., 23 Fr., 4 Sp. Total 30.



- C.* Asst. Professor SCHILLING, and Messrs. W. G. HOWARD and COAR. — German Prose and Poetry. Reading at sight; grammar and composition. Recitations and lectures (3 hours). 3 sections.  
1 Ju., 9 So., 43 Fr., 2 Sp. Total 55.
- 1a.* Professor VON JAGEMANN, and Messrs. W. G. HOWARD and COAR. — German Prose and Poetry. Reading at sight; grammar and composition. Recitations. 3 hours. 3 sections. 3 Ju., 54 So., 9 Fr., 3 Sp., 1 Sc. Total 70.
- 1b.* Associate Professor BARTLETT. — German Prose. Subjects in History and Biography. Reading at sight. Recitations. 3 hours.  
1 Se., 4 Ju., 15 So., 2 Fr., 2 Sp., 2 Sc. Total 26.
- 1c.* Dr. BIERWIRTH and Mr. COAR. — German Prose. Subjects in Natural Science. Reading at sight. Recitations. 3 hours.  
2 Se., 2 Ju., 4 So., 3 Fr., 25 Sc. Total 36.
- Ehf.* Mr. NICHOLS. — German Grammar and practice in writing German (first course). 1½ hours. 3 Se., 4 Ju., 8 So., 4 Fr., 1 Sp. Total 20.
- Fhf.* Dr. BIERWIRTH. — German Grammar and practice in writing German (second course). 1½ hours. 3 Se., 4 Ju., 9 So., 4 Fr., 3 Sp. Total 23.
- Ghf.* Dr. POLL. — German Grammar and practice in writing German (third course). 1 hour. 7 Gr., 7 Se., 6 Ju., 1 So., 1 Fr. Total 22.
- 2a.* Associate Professor BARTLETT and Dr. BIERWIRTH. — Introduction to German Literature of the Eighteenth Century. Selections from the works of Lessing, Goethe, and Schiller. German Ballads and Lyrics. Translation; reading at sight; composition. Recitations, lectures, and conferences. 3 hours. 2 sections. 1 Gr., 10 Ju., 22 So., 33 Fr., 4 Sp., 1 Sc. Total 71.
- 3.* Asst. Professor SCHILLING. — Schiller and his Contemporaries. Lessing (Emilia Galotti); Goethe (Iphigenie, Faust); Schiller (Kabale und Liebe, Wallenstein, Maria Stuart, Die Jungfrau von Orleans); ballads and lyrics. Lectures in German (1 hour) and recitations (2 hours). 8 reports (in German). 1 Se., 12 Ju., 14 So., 14 Fr., 1 Sc. Total 42.
- 4.* Professor FRANCKE. — Goethe and his Time. Lessing (Emilia Galotti); Schiller (Wallenstein); Goethe (Götz von Berlichingen, Egmont, Iphigenie, Tasso, Dichtung und Wahrheit, Gedichte, Faust). Lectures in German (1 hour) and recitations (2 hours); biweekly dictations.  
2 Se., 14 Ju., 20 So., 13 Fr., 5 Sp. Total 54.
- 6 hf.* Mr. NICHOLS. — German Prose (advanced course). Essayists of the Nineteenth Century. Recitations (2 hours).  
2 Se., 8 Ju., 6 So., 1 Sc., 1 Law. Total 18.

## GERMAN LITERATURE.

*For Undergraduates and Graduates:—*

- 5.* Professor FRANCKE and Mr. COAR. — History of German Literature to the Nineteenth Century; with special study of the Classic Periods of the Twelfth and Eighteenth Centuries. Lectures (3 hours); reading; 4 theses.  
9 Gr., 18 Se., 18 Ju., 7 So., 3 Fr., 1 Sc. Total 56.

- 26<sup>1</sup> *hf.* Mr. NICHOLS. — History of German Literature in the Nineteenth Century. Lectures (1 hour) and recitations (2 hours); collateral reading.  
3 Gr., 13 Se., 5 Ju., 3 So. Total 24.
8. Asst. Professor SCHILLING. — German Literature in the Twelfth and Thirteenth Centuries. Hartmann (Der arme Heinrich, and parts of Iwein); Nibelungenlied; selections from the Alexanderlied, Kudrun, Wolfram's Parzival, Gottfried's Tristan, and from Walther von der Vogelweide and other lyric poets. Translation into modern German. Lectures (1 hour), and recitations (2 hours); collateral reading (König Rother).  
3 Gr., 1 Se., 1 Ju. Total 5.
- 9<sup>1</sup> *hf.* Professor FRANCKE. — German Literature and Art in the Thirteenth and Fourteenth Centuries. The Mystic Movement. Meister Eckhart; Suso; Tauler. First Climax of Religious Sculpture. Lectures (2 hours).  
2 Instr., 7 Gr., 5 Se. Total 14.
- 9<sup>2</sup> *hf.* Professor FRANCKE. — German Literature and Art in the Fifteenth Century, The Religious Drama in its relation to Religious Painting, from the Van Eycks to Dürer. Lectures (2 hours). 6 Gr., 5 Se. Total 11.
- 10 *hf.* Dr. POLL. — German Literature from the Reformation to the Classic Period of the Eighteenth Century. Lectures (1 hour), reading, and thesis.  
5 Gr., 3 Se., 1 So. Total 9.

## SCANDINAVIAN LITERATURE.

*For Undergraduates and Graduates: —*

1. Dr. SCHOFIELD. — Modern Danish and Norwegian Literature. Holberg; Oehlenschläger; Ibsen; Björnson. History of Scandinavian Literature. Recitations and lectures; practice in speaking. 3 hours.  
2 Gr., 3 Se., 1 Ju. Total 6.

## GERMANIC PHILOLOGY.

*Primarily for Graduates: —*

- ‡ 12<sup>1</sup> *hf.* Professor VON JAGEMANN. Gothic. Introduction to the study of Germanic Philology. General introduction and Phonology. Lectures (3 hours). 10 Gr., 3 R. Total 13.
- ‡ 12<sup>2</sup> *hf.* Professor VON JAGEMANN. — Introduction to the study of Germanic Philology, continued. Morphology and Etymology. Lectures (3 hours). 11 Gr., 3 R. Total 14.
- 14<sup>2</sup> *hf.* Professor VON JAGEMANN. — Old Saxon. Introduction to Germanic Metrics. Lectures (3 hours). 9 Gr. Total 9.
- 15<sup>1</sup> *hf.* Professor VON JAGEMANN. — Old High German. Lectures (3 hours). 8 Gr. Total 8.

## SEMINARY COURSES IN GERMANIC LANGUAGES AND LITERATURES.

*Primarily for Graduates: —*

- ‡ 20<sup>a</sup>. Asst. Professor SCHILLING. — Kudrun and the kindred Sagas in other Germanic dialects. Lectures, recitations, and discussions (2 hours); thesis. 1 Gr. Total 1.
- ‡ 20<sup>c</sup> *hf.* Professor FRANCKE. — Selected German Passion-Plays of the Fifteenth Century. Conferences (2 hours). 5 Gr. Total 5.

## Romance Languages and Literatures.

## FRENCH.

*Primarily for Undergraduates:—*

- A. Messrs. C. H. C. WRIGHT and LA MESLÉE, and Dr. FORD.—Elementary Course. French prose. Composition. Recitations. 3 hours. 4 sections.  
2 Gr., 3 Se., 2 Ju., 4 So., 38 Fr., 16 Sp., 40 Sc. Total 105.
- 1b. Mr. BABBITT and Dr. FORD.—French Prose, historical and general. Recitations (3 hours); 10 reports on private reading. 3 sections.  
3 Ju., 14 So., 39 Fr., 5 Sp., 52 Sc. Total 113.
- 1a. Asst Professor DE SUMICHRIST, Mr. LA MESLÉE, and Dr. FORD.—Reading, translation, grammar, and composition. Recitations (3 hours); 4 reports. 3 sections. 1 Se., 7 Ju., 22 So., 59 Fr., 12 Sp., 6 Sc. Total 107.
- 2c. Dr. MARCOU, Messrs. LA MESLÉE and BABBITT, and Dr. FORD.—French Prose and Poetry. Corneille; Racine; Molière; Beaumarchais; Victor Hugo; Alfred de Musset; Balzac. Composition. Recitations and lectures (3 hours); thesis.  
6 Se., 11 Ju., 30 So., 90 Fr., 10 Sp., 6 Sc. Total 153.
- 2a. Messrs. C. H. C. WRIGHT and BABBITT.—French Prose and Poetry. La Fontaine; Corneille; Racine; Molière; Victor Hugo; George Sand; Alfred de Musset; Taine. Composition. Recitations and lectures (3 hours). 3 sections. 1 Se., 4 Ju., 27 So., 62 Fr., 8 Sp., 1 Sc. Total 103.
- 3 hf. Messrs. BRUN and LA MESLÉE.—Practice in speaking and writing French (elementary course). 2 hours. 4 sections.  
8 Ju., 42 So., 22 Fr., 5 Sp., 3 Sc. Total 80.
- 4 hf. Mr. BRUN.—Practice in speaking and writing French (intermediate course). 2 hours. 3 sections.  
1 Gr., 4 Se., 10 Ju., 23 So., 10 Fr., 4 Sp., 2 Sc., 1 Law. Total 55.
- 5 hf. Mr. BRUN.—Practice in speaking and writing French (advanced course). Oral discussions. Lectures (1 hour) and recitations (1 hour).  
1 Gr., 5 Se., 4 Ju., 4 So., 2 Fr., 1 Sp. Total 17.

*For Undergraduates and Graduates:—*

- 6c. Professor GRANDGENT and Mr. BABBITT.—General view of French Literature. Recitations and lectures (3 hours); private reading.  
4 Gr., 14 Se., 14 Ju., 21 So., 1 Fr., 1 Sc. Total 55.
6. Asst. Professor DE SUMICHRIST.—General view of French Literature. Lectures (3 hours); assigned reading; 16 reports; 2 theses.  
1 Gr., 2 Se., 8 Ju., 15 So., 4 Fr., 1 Sp. Total 31.
13. Mr. C. H. C. WRIGHT.—The rise and growth of Classicism in French Literature. Lectures (3 hours); assigned reading; 6 themes or theses.  
1 Gr., 5 Se., 3 Ju., 1 So., 2 Sp. Total 12.
14. Dr. MARCOU.—French Lyric Poetry from Villon and the Fifteenth Century to the present time. Lectures, reading of texts, and theses. Recitations and lectures (3 hours); assigned reading; thesis. 2 Gr., 4 Se. Total 6.

8<sup>1</sup>hf. Asst. Professor DE SUMICHRAST. — Voltaire and his contemporaries. Lectures; (2 hours) assigned reading; four themes.

1 Gr., 5 Se., 4 Ju., 1 So., 1 Sp. Total 12.

8<sup>2</sup>hf. Asst. Professor DE SUMICHRAST. — The Drama in the Eighteenth Century. Lectures (2 hours); assigned reading; three themes.

2 Gr., 3 Se., 4 Ju., 1 So., 1 Sp. Total 11.

10. Professor F. BÔCHER. — French Literature in the Sixteenth Century. Lectures, recitations, and conferences (3 hours); 3 reports; 4 theses.

2 Gr., 2 Se., 4 Ju., 1 So., 1 Fr., 1 Sp., 1 Law. Total 12.

*Primarily for Graduates: —*

†12. Professor SHELDON. — Old French Literature. The national Epic poetry (the Chansons de geste). Recitations (2 or 3 hours); assigned reading; one report.

6 Gr., 1 Se., 1 R. Total 8.

15. Professor F. BÔCHER. — French Comedy in the Sixteenth and Seventeenth Centuries. Lectures and recitations (2 hours); 8 reports; 3 theses.

1 Gr., 4 Se., 3 Ju., 1 So. Total 9.

#### ITALIAN.

*Primarily for Undergraduates: —*

1. Professor GRANDGENT. — Elements of Grammar. Selections from modern authors. Elementary exercises in writing Italian. Recitations (3 hours).

5 Se., 7 Ju., 4 So., 9 Fr. Total 25.

*For Undergraduates and Graduates: —*

2. Mr. FLETCHER. — Literature of the Fifteenth and Sixteenth Centuries. Torquato Tasso; Ariosto; Machiavelli; Benvenuto Cellini; Leopardi. Reading at sight. Recitations, lectures, and conferences (3 hours); 4 theses.

4 Gr., 2 Se., 1 Ju., 2 So. Total 9.

*Primarily for Graduates: —*

4. Professor NORTON. — Literature and the Fine Arts in Italy during the Middle Ages and the Renaissance, with special study of Dante. Lectures (2 hours); assigned reading; reports.

2 Gr., 7 Se., 5 Ju., 4 So., 1 Sp. Total 19.

#### SPANISH.

*Primarily for Undergraduates: —*

1. Professor MARSH and Mr. SKINNER. — Grammar, reading (modern novels and plays), and composition (3 hours).

1 Gr., 28 Se., 24 Ju., 34 So., 13 Fr., 2 Sp., 5 Se. Total 107.

2. Dr. MARCOU. — Literature of the Sixteenth and Seventeenth Centuries. Cervantes; Lope de Vega; Calderón. Composition. Lectures and recitations (3 hours).

5 Gr., 6 Se., 4 Ju., 4 So., 1 Se. Total 20.

*Primarily for Graduates: —*

3. Professor SHELDON. — Early Spanish. The Poem of the Cid. Spanish Literature to the Fifteenth Century. Recitations (3 hours); assigned reading; one report.

4 Gr., 1 Se. Total 5.



## ROMANCE PHILOLOGY.

*Primarily for Graduates :—*

3. Professor SHELDON.—Old French. Phonology and Inflections. The oldest texts. *La Chanson de Roland*; Chrétien de Troyes; Aucassin et Nicolette. Recitations (2 or 3 hours); assigned reading; one report.  
8 Gr., 3 Se. Total 11.
- ‡4. Professor GRANDGENT.—Provençal. Language and Literature, with selections from the poetry of the Troubadours. Lectures and recitations (3 hours).  
4 Gr., 1 Se. Total 5.
- ‡5<sup>1</sup> hf. Professor GRANDGENT.—Low Latin. Lectures and recitations (2 hours); assigned reading.  
3 Gr., 1 R. Total 4.
- 7 hf. Professor SHELDON.—The French Element in English. Lectures (1 or 2 hours); thesis.  
2 Gr., 1 Sp. Total 3.

## COURSES OF SPECIAL STUDY IN ROMANCE LANGUAGES AND LITERATURES.

*Primarily for Graduates :—*

- 20b. Professor F. BÔCHER.—The language of the Essays of Montaigne. Conferences (2 hours).  
1 Gr. Total 1.
- ‡20d. Professor SHELDON.—Portuguese Phonology and Inflections, with reading of texts. Conferences (1 hour); one thesis.  
1 Gr. Total 1.

## Comparative Literature.

*For Undergraduates and Graduates :—*

2. Professor MARSH.—Mediaeval and Modern Literature in the vulgar tongues, with special reference to the influence of France and Provence. Lectures (3 hours); theses.  
3 Gr., 1 Se. Total 4.

*Primarily for Graduates :—*

- ‡1. Professor MARSH.—History of Latin Literature in the Middle Ages (beginning with the Fourth Century), and its relations to Classic and Modern Literature. Lectures (3 hours); theses.  
1 Gr., 2 R. Total 3.
3. Dr. SCHOFIELD.—The Origin and Literary History of the Arthurian Legends and Romances. Lectures and discussions (2 or 3 hours); special investigations.  
5 Gr. Total 5.
4. Mr. FLETCHER.—The History of the Pastoral (particularly in the Renaissance). Lectures (1 hour) and conferences; study of special topics; thesis.  
2 Gr. Total 2.

## Celtic.

*Primarily for Graduates :—*

- 1<sup>1</sup> hf. Dr. F. N. ROBINSON.—Old Irish. Grammar and interpretation of texts. General introduction to Celtic Philology. Lectures and recitations (3 hours).  
2 Gr. Total 2.
- 2<sup>2</sup> hf. Dr. F. N. ROBINSON.—Middle Irish. Windisch's *Irische Texte*. Lectures on the history of Irish Literature. Lectures and recitations (3 hours).  
2 Gr. Total 2.

## Slavic Languages.

*For Undergraduates and Graduates :—*

- 1a. Mr. WIENER. — Russian. Grammar, reading, and composition. Recitations (3 hours). 1 Gr. Total 1.
- 1b. Mr. WIENER. — Russian. Literature of the Nineteenth Century. Pushkin, Gogol, Turgenev, Tolstoy. Composition. Recitations (3 hours). 2 Se. Total 2.
- 2a. Mr. WIENER. — Polish. Grammar, reading, and composition. Recitations (3 hours). 1 Gr. Total 1.

## History and Government.

## HISTORY.

*Primarily for Undergraduates :—*

1. Dr. COOLIDGE, assisted by Messrs. ANDREW, VILES, and NEWHALL, and by other members of the Department. Mediaeval and Modern European History (introductory course). Lectures (3 hours) and conferences. 1 Se., 1 Ju., 54 So., 338 Fr. 47 Sp., 11 Sc. Total 452.

*For Undergraduates and Graduates :—*

3. Dr. BOTSFORD. — Political History of Rome to the Reign of Diocletian. Lectures (3 hours). 4 Gr., 19 Se., 4 Ju., 9 So., 3 Fr., 2 Sp., 1 Sc., 1 Law. Total 43.
5. Professor EMERTON. — The Mediaeval Church. Formation of national churches in the Germanic states. Establishment of the Mediaeval Papacy and its development as the controlling force in European life. The Holy Roman Empire. Lectures (2 hours) and collateral reading. 10 Gr., 3 Se., 2 Ju., 1 So., 1 Sp., 3 Di. Total 20.
6. Asst. Professor PLATNER. — History of the Church during the first six centuries, with special reference to the Patristic Literature. Lectures (2 hours) and collateral reading; thesis. 1 Se., 1 So., 9 Di. Total 11.
21. Asst. Professor PLATNER. — History of Protestant Christianity, especially in Germany, France, England, and America, with briefer treatment of the history of the Roman Catholic Church since the Council of Trent. Lectures (2 hours) and collateral reading; thesis. 1 Se., 1 Ju. Total 2.
8. Asst. Professor GROSS. — History of France to the reign of Francis I. Lectures (2 or 3 hours); 2 theses. 7 Gr., 13 Se., 5 Ju., 12 So., 1 Sp. Total 38.
9. Asst. Professor GROSS. — Constitutional History of England to the Sixteenth Century. Lectures (3 hours); 3 theses. 13 Gr., 25 Se., 15 Ju., 7 So., 3 Sp., 1 Law. Total 64.
11. Professor CHANNING. — History of England during the Tudor and Stuart Periods. Lectures (2½ hours); written work in classroom. 11 Gr., 20 Se., 18 Ju., 9 So. Total 58.
12. Professor MACVANE, assisted by Mr. TRENHOLME. — European History since the middle of the Eighteenth Century. Lectures (3 hours) and conferences; 2 theses. 5 Gr., 52 Se., 44 Ju., 98 So., 8 Fr., 17 Sp., 1 Sc. Total 225.

15. Dr. COOLIDGE. — History of North-Eastern Europe (Denmark, Sweden, Poland, Russia) from 1453 to 1795. Lectures (3 hours); thesis.  
6 Gr., 13 Se., 7 Ju., 5 So., 1 Fr., 1 Sp. Total 33.
10. Professor CHANNING, assisted by Mr. BELL. — American History (to 1783). Lectures (2½ hours); written work in classroom; 2 theses.  
1 Gr., 26 Se., 39 Ju., 126 So., 1 Fr., 20 Sp., 5 Sc. Total 218.
13. Professor HART, assisted by Messrs. GOODWIN and DORMAN. — Constitutional and Political History of the United States (1783-1865). Lectures (3 hours) and conferences; weekly papers; 3 reports.  
3 Gr., 69 Se., 97 Ju., 52 So., 2 Fr., 13 Sp., 1 Sc., 1 Law. Total 238.

*Primarily for Graduates:—*

- †17. Dr. BOTSFORD. — Constitutional History of Athens. Lectures (2 hours); thesis.  
8 Gr. Total 8.
- †22 hf. Asst. Professor GROSS. — The Sources and Literature of English Constitutional History. Lectures (1 hour) and conferences. 1 Gr. Total 1.
26. Professor EMERTON. — The History of Christian Thought, considered in its relation to the prevailing philosophy of each period, from the earliest times to the Eighteenth Century. Lectures (2 hours) and collateral reading; thesis.  
2 Gr., 1 So., 6 Di. Total 9.
- †24<sup>2</sup> hf. Professor HART. — The Sources and Literature of American History. Lectures. 2 hours.  
1 Gr., 1 Se., 1 Ju., 1 R. Total 4.

SEMINARY COURSES IN HISTORY AND GOVERNMENT.

*Primarily for Graduates:—*

- 20a. Professor EMERTON. — The Hildebrandine Reforms with special reference to contemporary pamphlet literature. Conferences (2 hours); 5 reports.  
3 Gr., 2 Di. Total 5.
- 20b. Asst. Professor GROSS. — English Institutions in the Middle Ages. Conferences (1 hour); thesis.  
2 Gr. Total 2.
- †20c. Professor MACVANE. — Recent Constitutional History. Fortnightly conferences; thesis.  
1 Gr., 1 Law., 2 R. Total 4.
- 20d. Dr. COOLIDGE. — Recent Diplomatic History of Europe. Conferences (1 hour).  
1 Gr. Total 1.
- 20e. Professors CHANNING and HART. — American History and Institutions. Weekly conferences.  
14 Gr. Total 14.
- 20g. Professors STROBEL and BEALE. — International Law. Writers on International law before Grotius. International relations of the South American States.  
1 Se. Total 1.

GOVERNMENT.

*Primarily for Undergraduates:—*

1. Professor MACVANE and Mr. LOWELL, assisted by Messrs. SEAMAN GORRILL, and DORMAN. — Constitutional Government (elementary course). Lectures (2 hours); recitations (1 hour) in 12 sections; conferences.  
8 Ju., 154 So., 188 Fr., 50 Sp., 15 Se. Total 415.

*For Undergraduates and Graduates :—*

4. Professor STROBEL, assisted by Mr. BIGELOW. — Elements of International Law. Lectures and discussions (3 hours); 4 theses.  
4 Gr., 47 Se., 19 Ju., 4 So., 4 Sp., 2 Law. Total 80.
- 7<sup>1</sup> hf. Professor MACVANE. — Leading Principles of Constitutional Law. Selected cases (American and English). Lectures and discussions (2 or 3 hours).  
1 Gr., 6 Se., 6 Ju., 4 Law. Total 17.
10. Mr. LOWELL. — Modern Governments. Studies in existing Political Systems and in the influence of Political Parties. Lectures (2 or 3 hours); 3 theses.  
1 Gr., 16 Se., 7 Ju., 6 So., 1 Sp. Total 31.

*Primarily for Graduates :—*

- ‡12. Professor HART. — The American Political System, national, state, and municipal. Lectures (3 hours); 8 reports.  
4 Gr., 8 Se., 2 Ju., 1 So., 3 R. Total 18.
14. Professor J. B. THAYER. — Constitutional Law in the United States. Lectures (3 hours).  
1 Gr. Total 1.
15. Professor STROBEL. — International Law (advanced course). Study of cases decided by the courts of England and the United States. 2 hours.  
2 Gr., 2 Se. Total 4.

**Economics.***Primarily for Undergraduates :—*

1. Professor TAUSSIG, Asst. Professor E. CUMMINGS, Dr. J. CUMMINGS, Dr. ALDRICH, Dr. SPRAGUE, Mr. WARREN, and Mr. BEARDSLEY. Lectures (2 hours); recitations and conferences (1 hour) in 14 sections.  
26 Se., 88 Ju., 259 So., 13 Fr., 40 Sp., 17 Sc. Total 443.

*For Undergraduates and Graduates :—*

2. Professor TAUSSIG. — Economic Theory in the Nineteenth Century. Discussion of selected passages from leading writers. The history of theory. Lectures and recitations (3 hours).  
5 Gr., 27 Se., 22 Ju., 3 So., 8 Sp., 2 Law. Total 67.
13. Professor TAUSSIG. — Methods of Economic Investigation. Rapid reading in English and German books, and discussion of questions of method and scope. Lectures and conferences. 2 hours.  
2 Gr., 2 Se., 1 Ju. Total 5.
3. Asst. Professor EDWARD CUMMINGS. — The Principles of Sociology. Development of the Modern State, and of its Social Functions. Lectures (2 or 3 hours) and conferences. 4 reports or theses.  
4 Gr., 42 Se., 21 Ju., 5 So., 7 Sp., 1 Sc., 2 Di., 1 Law. Total 83.
- 8<sup>2</sup> hf. Dr. CUNNINGHAM. — Western Civilization, mediaeval and modern, in its Economic Aspects. Lectures (3 hours). 4 reports.  
13 Gr., 41 Se., 15 Ju., 23 So., 1 Fr., 8 Sp., 3 Sc., 1 Law. Total 105.
- 11<sup>2</sup> hf. Dr. CUNNINGHAM. — The Industrial Revolution in England. Lectures (2 hours) and conferences. 6 reports.  
8 Gr., 30 Se., 21 Ju., 17 So., 1 Fr., 12 Sp., 9 Sc. Total 98.



6. Dr. CALLENDER. — The Economic History of the United States. Lectures (2 hours) and discussions of assigned reading (1 hour). 2 theses.  
6 Gr., 60 Se., 38 Ju., 7 So., 6 Sp., 1 Sc., 3 Law., 1 Me. Total 122.
9. Asst. Professor EDWARD CUMMINGS. — The Labor Question in Europe and the United States. The Social and Economic Condition of Workingmen. Lectures (3 hours) and conferences; 2 reports; thesis.  
2 Gr., 51 Se., 42 Ju., 22 So., 8 Sp., 3 Sc., 1 Law. Total 129.
4. Dr. JOHN CUMMINGS. — Statistics. Theory, method, and practice. Studies in Demography. Lectures (3 hours) and conferences; 2 reports; theses.  
10 Se., 4 Ju., 4 So., 1 Sc. Total 19.
- 17<sup>2</sup> hf. Dr. JOHN CUMMINGS. — Ethnology in its Applications to Economic and Social Problems. Lectures and discussions (3 or 2 hours); conferences; 2 reports; 2 theses. 1 Gr., 4 Se., 6 Ju., 2 Sp., 2 Sc., 1 Me. Total 16.
- 5<sup>1</sup> hf. Mr. MEYER. — Railways and other Public Works under Public and Corporate Management. Lectures (3 or 2 hours).  
1 Gr., 49 Se., 16 Ju., 7 So., 4 Sp., 3 Sc., 5 Law. Total 85.
16. Professor DUNBAR. — Selected Topics in the Financial Legislation of the United States. Lectures (2 hours). 4 reports.  
4 Gr., 11 Se., 1 Ju., 1 So., 3 Sp., 2 Law. Total 22.
- 12<sup>1</sup> hf. Professor DUNBAR. — Banking and the History of the leading Banking Systems. Lectures (3 hours).  
2 Gr., 41 Se., 8 Ju., 3 So., 3 Sp., 4 Law. Total 61.

*Primarily for Graduates: —*

20. THE SEMINARY IN ECONOMICS. — Conferences (weekly); open meetings (fortnightly); thesis. Instructors and topics for 1898-99: —
- (a) Professor DUNBAR. — The Theory of Money. 1 Gr. Total 1.
- (b) Professor TAUSSIG. — Local Taxation in the United States.  
6 Gr., 1 Law. Total 7.

**Philosophy.**

*Primarily for Undergraduates: —*

- 1a. Professors PALMER and MÜNSTERBERG, assisted by Dr. RAND. — General Introduction to Philosophy. Logic. The Relations of the Philosophical Sciences. Psychology. Lectures (3 hours) and conferences.  
3 Gr., 4 Se., 82 Ju., 95 So., 12 Fr., 19 Sp., 14 Sc. Total 229.
- 1b. Asst. Professor SANTAYANA and Professor ROYCE, assisted by Dr. RAND. — Outlines of the History of Philosophy. Introduction to the study of Philosophical Theory. Lectures (3 hours) and conferences; assigned reading.  
4 Se., 60 Ju., 17 So., 5 Fr., 6 Sp., 1 Sc. Total 93.

*For Undergraduates and Graduates: —*

- 2<sup>1</sup> hf. Professor MÜNSTERBERG. — Advanced Psychology. Lectures (3 hours); prescribed reading; thesis.  
8 Gr., 48 Se., 11 Ju., 4 So., 2 Sp., 7 Sc., 1 Di., 3 Law. Total 84.

- 14<sup>2</sup> *hf.* Dr. MACDOUGALL.—Experimental Psychology (elementary laboratory course). The psychology of sensation, and of the elementary mental processes. Lectures (1 hour) and laboratory work (4 hours); reports; thesis. 2 Gr., 6 Se., 9 Ju., 1 Sc. Total 18.
3. Professors ROYCE and PALMER.—The Philosophy of Nature, with especial reference to man's place in Nature. Lectures (3 hours) and assigned reading; 3 theses. 6 Gr., 18 Se., 7 Ju., 2 So., 4 Sp., 2 Sc., 3 Di., 1 Law. Total 43.
4. Professor PALMER.—Ethics. The Theory of Morals, considered constructively. Lectures (3 hours) and prescribed reading; 4 theses. 9 Gr., 34 Se., 19 Ju., 4 So., 1 Fr., 2 Sp. Total 69.
- 6 *hf.* Professor EVERETT.—The Psychological Elements of Religious Faith. Lectures (1 hour) and assigned reading; thesis. 3 Gr., 3 Se., 2 Ju., 1 So., 1 Sp., 7 Di. Total 17.
7. Professor EVERETT.—Theism and the Special Contents of Christian Faith. Lectures (3 hours); thesis. 1 Gr., 2 Se., 1 So., 7 Di. Total 11.
9. Professor JAMES.—Metaphysics. The fundamental problems of Theoretical Philosophy. The unity or plurality of the World-Ground, and its knowability or unknowability; Realism and Idealism; Freedom, Teleology, and Theism. Lectures and recitations (3 hours); 2 reports. 13 Gr., 13 Se., 3 Ju., 3 Sp., 6 Di. Total 38.
- 10<sup>2</sup> *hf.* Asst. Professor SANTAYANA.—Aesthetics. The Philosophy of Art, with a survey of aesthetic theories. 3 hours. 14 Gr., 37 Se., 16 Ju., 12 So., 3 Sp., 1 Sc. Total 83.
12. Asst. Professor SANTAYANA.—Greek Philosophy, with especial reference to Plato. Lectures (3 hours), prescribed reading; theses. 7 Gr., 18 Se., 3 Ju., 1 So., 3 Sp., 3 Di. Total 35.
- 11<sup>2</sup> *hf.* Professor ROYCE.—Descartes, Spinoza, and Leibnitz. Lectures (3 hours) and prescribed reading; 2 reports; thesis. 6 Gr., 6 Se., 4 Ju., 3 So., 1 Sp., 1 Sc. Total 21.
- 13 *hf.* Professor EVERETT.—The Comparative Study of Religion. Studies in the Comparative History of Religions, particularly the Vedic religion, the Hindu philosophies, Buddhism, Mazdaism, and the Chinese religions. Lectures (2 hours) and assigned reading. 4 Gr., 2 Se., 2 Ju., 5 Di., 1 Law. Total 14.
- 8<sup>1</sup> *hf.* Professor JAMES.—The Philosophy of Kant. Lectures and recitations (3 hours). 7 Gr., 7 Se., 1 So., 1 Sp. Total 16.

*Primarily for Graduates:—*

SEMINARY COURSES.

- †20a. Professor MÜNSTERBERG and Dr. MACDOUGALL.—Psychological Laboratory. Experimental investigations by advanced students. Laboratory work (6 to 18 hours); 1 report. 10 Gr., 1 Se., 1 Sp. Total 12.
- †20b. Professor JAMES.—Psychological Seminary. Abnormal Psychology. A study of the various types of insanity and of exceptional mental phenomena. Lectures and recitations (3 hours); 3 visits to asylums; 2 reports. 6 Gr., 4 Se., 1 Ju., 1 Sc. Total 12.

- †20c. Professor ROYCE.—Metaphysical Seminary. The problems of Logic and Epistemology, and their general relations to philosophical problems. Selected concepts, such as time, freedom, etc., critically analyzed and compared. Meetings for presentation and discussion of reports (2½ hours); thesis. 5 Gr., 3 Di., 1 R. Total 9.
- †20d. Professor PALMER.—Ethical Seminary. The Ethics of Idealism. The Development of German Ethics in Kant, Fichte and Hegel. Conferences (2 hours); 3 theses. 5 Gr., 1 So., 4 Di. Total 10.
- 20h. Professor EVERETT.—A study of Fichte, with special reference to the Philosophy of Religion. Conferences (2 hours); thesis. 2 Gr., 4 Di. Total 6.

## COURSES IN EDUCATION AND TEACHING.

*For Undergraduates and Graduates:—*

16. Mr. LOCKE.—The History of Educational Theories and Practices. Lectures (2 hours) and discussions; 6 reports; 2 theses. 2 hours. 12 Gr., 10 Se., 4 Ju., 3 So., 2 Sp., 4 Sc. Total 35.
- 18 hf. Asst. Professor HANUS.—Introduction to Educational Theory. Discussion of Educational Principles. Lectures (1 hour) and discussions; theses. 13 Gr., 12 Se., 5 Ju., 1 Sp., 1 Se., 1 Law. Total 37.
- †19b hf. Asst. Professor HANUS, assisted by eight teachers in colleges or secondary schools. Methods of Teaching Latin, Greek, English, German, French, and History in Elementary and Secondary Schools (about 10 exercises in each subject). Lectures or recitations (2 hours); 1 thesis. 3 Gr., 1 Ju., 2 R. Total 6.

*Primarily for Graduates:—*

- †17. Asst. Professor HANUS and Mr. LOCKE.—Organization and Management of Public Schools and Academies. Courses of Study, Supervision, and Teaching. Lectures (2 hours) and conferences. Visits to schools (at least 3 hours), or practice in teaching in schools (2 to 5 hours). Reports on visits (weekly); short essays; 2 theses. 2 sections. 13 Gr., 7 Se., 1 Ju., 1 So., 1 Se., 3 R. Total 26.
- †20g. Asst. Professor HANUS.—Pedagogical Seminary. Contemporary Problems in Education, more particularly Secondary Education and the Organization and Management of Schools and School Systems. Investigation of special topics. Lectures and discussions (2 hours); conferences; monthly reports; 3 theses. 13 Gr., 1 Se., 2 R. Total 15.

## The Fine Arts.

*Primarily for Undergraduates:—*

1. Professor CHARLES H. MOORE, assisted by Mr. MOWER.—Principles of Delineation, Color, and Chiaroscuro, with some considerations of historic forms of art, and the conditions which have influenced them. Perspective. Lectures (1 hour) and collateral reading. Practice in drawing and in the use of water-colors (2 hours). 1 Gr., 2 Se., 5 Ju., 28 So., 12 Fr., 6 Sp., 13 Sc., 1 B. Total 68.

2. Professor CHARLES H. MOORE. — Principles of Design in Painting, Sculpture, and Architecture, as exemplified in the arts of past ages. Lectures (2 hours) and collateral reading. Practice in drawing (1 hour).

2 Se., 1 Ju., 5 So., 1 Fr., 1 Se., 1 B. Total 11.

*For Undergraduates and Graduates: —*

3. Mr. EDWARD ROBINSON. — The History of Greek Art, with an introduction on the Arts of Egypt, Assyria, and Phoenicia, in their relation to Greek Art. Lectures (3 hours).

6 Gr., 35 Se., 39 Ju., 58 So., 1 Fr., 12 Sp., 21 Se., 1 Law. Total 173.

*Primarily for Graduates: —*

- ‡20<sup>1</sup> hf. Mr. EDWARD ROBINSON. — Classical Archaeology (advanced course). Practical exercises on special topics connected with the Acropolis of Athens and its monuments. Lectures and discussions (2 hours).

4 Gr., 1 Se., 2 Ju., 1 Sc. Total 8.

### Architecture.

*The courses in Architecture are intended primarily for students in the Lawrence Scientific School, and only Courses 1a, 1b, and 1c may be counted towards the degree of A.B.*

- 1a. Asst. Professor WARREN. — Technical and Historical Development of the Ancient Styles, with especial reference to Classic Architecture. Lectures (2 or 3 hours) and practice in drawing (about 3 hours).

1 Gr., 1 Se., 2 Ju., 2 So., 2 Fr., 14 Sc. Total 22.

- 1b. Asst. Professor WARREN. — Technical and Historical Development of the Mediaeval Styles of Architecture. Lectures (2 or 3 hours) and practice in drawing (1 hour). 1 Gr., 2 Se., 3 Ju., 1 So., 17 Sc. Total 24.

- 2a. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Elementary Architectural Drawing. The Orders. 12 to 18 hours.

1 Gr., 1 Se., 1 Fr., 8 Sc. Total 11.

- 3a. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects. 6 hours.

1 Gr., 2 Se., 1 Fr., 7 Sc. Total 11.

- 3b. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects (second course). 6 hours.

10 Sc. Total 10.

- 3c<sup>1</sup> hf. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Freehand Drawing from Architectural Subjects (third course). 6 hours.

7 Sc. Total 7.

- 4a. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Elementary Architectural Design. Problems and Criticisms. One measured drawing; 6 assigned problems; 2 designs from dictation.

8 Sc. Total 8.

- 4b. Asst. Professor WARREN and Mr. NEWTON. — Architectural Design (second course). Problems and Criticisms. One measured drawing; 6 problems (of which 3 were assigned and criticised by Messrs. R. C. STURGIS, R. S. PEABODY, and E. M. WHEELWRIGHT).

9 Sc. Total 9.



- 4c. Asst. Professor WARREN and Mr. NEWTON. — Architectural Design (advanced course). Problems and Criticisms. Thesis design (large public building). 8 Sc. Total 8.
- 5<sup>1</sup> hf. Mr. NEWTON. — Building Construction: Carpentry. Lectures (1½ hours) and drawing (1½ hours). 8 Sc. Total 8.
- 6 hf. Mr. GARBUTT. — Modelling. Practice in modelling architectural ornament in clay (3 hours). 9 Sc. Total 9.

### Music.

*For Undergraduates and Graduates: —*

1. Mr. SPALDING. — Harmony. Lectures (3 hours).  
2 Se., 3 Ju., 4 So., 8 Fr., 2 Sp., 2 Sc. Total 21.
2. Mr. SPALDING. — Advanced Harmony and Counterpoint. Lectures (3 hours); original compositions. 2 Gr., 2 Ju., 5 So. Total 9.
- 7 hf. Professor PAINE. — Instrumentation. 1 hour.  
1 Gr., 4 Se., 5 Ju. Total 10.
8. Professor PAINE. — Chamber Music of Beethoven and other masters, with analysis of their principal works. Lectures (2 hours); ten illustrative concerts. 2 Gr., 4 Se., 4 Ju. Total 10.

*Primarily for Graduates: —*

- ‡5. Professor PAINE. — Canon and Fugue. Free Thematic Music. 2 hours.  
2 Se., 3 Ju. Total 5.
- ‡6. Professor PAINE. — Advanced Canon and Fugue and Free Composition. 2 hours.  
1 Se., 1 Ju. Total 2.

### Mathematics.

*Primarily for Undergraduates: —*

- A<sup>1</sup> hf. Dr. SAFFORD. — Logarithms. Plane and Spherical Trigonometry. Lectures (3 hours) and problems.  
2 Gr., 3 Se., 2 Ju., 7 So., 23 Fr., 8 Sp., 4 Sc. Total 49.
- B<sup>2</sup> hf. Dr. SAFFORD. — Plane Analytic Geometry (elementary course). Lectures (3 hours) and problems. 1 Gr., 5 So., 13 Fr., 3 Sp., 4 Sc. Total 26.
- C. Mr. ASHTON. — Plane and Solid Analytic Geometry (extended course). Lectures (3 hours) and problems.  
1 Se., 3 So., 13 Fr., 1 Sp., 1 Sc. Total 19.
- D<sup>1</sup> hf. Dr. SAFFORD. — Algebra. Lectures (3 hours) and problems.  
1 Se., 2 Ju., 9 So., 27 Fr., 1 Sp., 1 Sc. Total 41.
- E<sup>2</sup> hf. Dr. SAFFORD. — Solid Geometry. Lectures (3 hours) and problems. 2 sections.  
3 Se., 4 Ju., 5 So., 29 Fr., 8 Sp., 9 Sc., 1 Law, 1 Me. Total 60.
- F. Mr. ASHTON and Dr. SAFFORD. — Trigonometry and Plane Analytic Geometry. Lectures (3 hours) and problems. 2 sections.  
3 Ju., 4 So., 47 Fr., 1 Sp. Total 55.

2. Asst. Professor OSGOOD, assisted by Mr. ASHTON. — Differential and Integral Calculus (first course). Lectures and conferences (3 hours); problems. 4 Ju., 12 So., 1 Fr., 1 Sc. Total 18.
4. Asst. Professor M. BÔCHER.—The Elements of Mechanics. Lectures (3 hours) and problems. 4 Gr., 7 Se., 6 Ju., 3 So. Total 20.

*For Undergraduates and Graduates:—*

- 1<sup>1</sup> hf. Asst. Professor M. BÔCHER.—Theory of Equations. Invariants. Lectures (3 hours) and problems. 4 Gr., 2 So. Total 6.
3. Dr. BOUTON. — Modern Methods in Geometry. Determinants. Lectures (3 hours) and problems; thesis. 6 Gr., 2 Se., 1 Ju., 3 So. Total 12.
5. Professor BYERLY. — Differential and Integral Calculus (second course). Lectures (3 hours) and problems. 7 Gr., 4 Se., 6 Ju., 2 So. Total 19.
8. Professor BYERLY. — Dynamics of a Rigid Body. Lectures (3 hours) and problems. 6 Gr., 3 Se. Total 9.
- 12<sup>1</sup> hf. Asst. Professor OSGOOD. — Infinite Series and Products. Lectures (3 hours) and problems; thesis. 5 Gr., 2 Se. Total 7.
- 14b<sup>2</sup> hf. Asst. Professor OSGOOD. — Algebra. Galois's Theory of Equations. Lectures (3 hours). 5 Gr., 1 Se. Total 6.

*Primarily for Graduates:—*

7. Professor F. S. WOODS (Mass. Inst. of Technology). — Higher Geometry. Lectures (3 hours). 5 Gr., 3 Se. Total 8.
- †10. Professors BYERLY and B. O. PEIRCE. — Trigonometric Series. Introduction to Spherical Harmonics. Potential Function. Lectures (3 hours) and problems. 7 Gr., 2 Se., 1 R. Total 10.
- †13. Asst. Professor M. BÔCHER. — The Theory of Functions (introductory course). Lectures (3 hours) and problems. 7 Gr., 2 Se., 1 R. Total 10.
- †24<sup>2</sup> hf. Asst. Professor M. BÔCHER. — The Theory of Numbers. Lectures (3 hours) and problems. 7 Gr., 1 Se. Total 8.
- †15. Dr. BOUTON. — Lie's Theories as applied to Differential Equations and to Invariants. Lectures (3 hours) and problems; 2 theses. 5 Gr. Total 5.
- †22 hf. Professor B. O. PEIRCE. — The Theory of Surfaces. Lectures (1 hour) and problems; practice in construction of models; thesis. 1 Gr., 3 Se. Total 4.
- †17. Asst. Professor OSGOOD. — The Theory of Functions (second course). Riemann's Theory. Lectures (3 hours) and problems; thesis. 3 Gr. Total 3.
- †20c. Professor BYERLY. — Picard, *Traité d'Analyse*, Vol. I. 1 Gr. Total 1.
- †20e hf. Asst. Professor OSGOOD. — The Icosahedron and the Elliptic Modular Functions. Weekly conferences. 1 Gr. Total 1.

**Astronomy.***Primarily for Undergraduates:—*

1<sup>1</sup> hf. Dr. WILLSON and Mr. REED.—Descriptive Astronomy. Lectures (2 hours) and laboratory work (1 hour); one report.

42 Se., 29 Ju., 13 So., 3 Fr., 4 Sp., 14 Sc., 3 Law Total 108.

2<sup>2</sup>. Dr. WILLSON and Mr. REED.—Practical Astronomy. Application of Astronomy to Navigation and Exploration. Lectures, with practice in use of instruments and in computation. 3 hours.

4 Se., 2 Ju., 4 So., 2 Sp., 3 Sc. Total 15.

*For Undergraduates and Graduates:—*

3. Dr. WILLSON.—Practical Astronomy. Practice in use of portable and fixed instruments (transit, meridian circle, equatorial). 3 hours.

1 Gr., 2 Se., 1 Ju. Total 4.

4. Professor ASAPH HALL (U. S. Navy).—Spherical Astronomy. Elementary Theory of Orbits. Lectures (3 hours) and computations; report.

1 Gr., 2 Se., 1 Sc. Total 4.

**Engineering.**

*The courses in Engineering are intended primarily for students in the Lawrence Scientific School, and only a few of them can ordinarily be counted towards the degree of A.B. The Catalogue shows in detail what courses may be so counted.*

1a<sup>1</sup> hf. Messrs. LOVE and ASHTON, Dr. SAFFORD, Mr. FRIZELL, and Dr. CAMPBELL.—Algebra. Recitations (3 hours). 5 sections.

1 Se., 6 Ju., 6 So., 6 Fr., 123 Sc. Total 142.

1b<sup>1</sup> hf. Messrs. LOVE, ASHTON, and FRIZELL, and Dr. CAMPBELL.—Trigonometry. Recitations (2 hours). 4 sections.

2 Se., 2 So., 2 Fr., 120 Sc. Total 126.

1c. Messrs. LOVE and FRIZELL, and Dr. CAMPBELL.—Solid Analytic Geometry. Differential and Integral Calculus. Recitations (4 or 3 hours) and conferences (weekly). 3 sections.

1 Se., 1 Ju., 5 So., 1 Fr., 1 Sp., 47 Sc. Total 56.

1d<sup>2</sup> hf. Messrs. LOVE, ASHTON, and FRIZELL, and Drs. SAFFORD and CAMPBELL.—Analytic Geometry. Recitations (3 hours) and conferences (weekly). 5 sections.

2 Ju., 5 So., 5 Fr., 101 Sc. Total 113.

1f<sup>1</sup> hf. Mr. LOVE.—Integral Calculus and Differential Equations. Recitations (3 hours).

1 Se., 1 Ju., 13 Sc. Total 15.

3a. Messrs. MOSES, KENNEDY, and POPE.—Mechanical Drawing. Use of Instruments. Projections and Machine Drawing. Lectures (1 hour); draughting (6 hours). 2 sections.

4 Se., 2 Ju., 4 So., 6 Fr., 1 Sp., 105 Sc. Total 122.

3b<sup>1</sup> hf. Messrs. MOSES and KENNEDY.—Descriptive Geometry. Elementary study of shades, shadows, and perspective. Lectures and recitations (2 hours); draughting (6 to 9 hours). 2 sections.

4 Se., 2 Ju., 1 So., 43 Sc. Total 50.

- 3d<sup>2</sup> hf. Mr. MOSES. — Mechanism. Study of gearing and mechanical movements. Lectures and recitations (2 hours); draughting (4 hours); problems. 2 sections. 2 Se., 2 Ju., 1 So., 46 Sc. Total 51.
- 3e<sup>2</sup> hf. Mr. MOSES. — Stereotomy, Shades, Shadows, and Perspective. Lectures (1 hour); draughting (6 hours). 2 sections. 2 Se., 1 Ju., 18 Sc. Total 21.
- 4a<sup>2</sup>. Messrs. TURNER and BLAKE. — Surveying. Use of instruments, plane and topographical surveying, topographical drawing, and levelling. Lectures (9 weeks, 2 hours); drawing (9 weeks, 4 hours); field practice (6 weeks in term time, 6 hours; 7 weeks in summer, 45 hours); 12 reports. 1 Gr., 2 Se., 1 Ju., 1 So., 2 Fr., 40 Sc., 1 B. Total 48.
- 4e<sup>2</sup> hf. Messrs. TURNER and BLAKE. — Geodetic Surveying. Field work of triangulation. The use of astronomical instruments in surveying and navigation. 3 weeks in summer, 45 hours. 9 Sc. Total 9.
- 4d<sup>2</sup> hf. Messrs. TURNER and BLAKE. — Railroad Engineering. Survey, location, and construction of railroads. Lectures (in term time, 2 hours); problems; field practice (4 weeks in summer, 45 hours). 2 Se., 1 Ju., 19 Sc. Total 22.
- 10a<sup>1</sup> hf. Mr. BURKE. — Chipping, Filing, and Fitting. Use of hand tools. Fitting by hand. Study of the metals in practical working. Lectures and demonstrations (2 hours); laboratory work (4 hours); 5 excursions. 20 Sc. Total 20.
- 10b<sup>1</sup> hf. Mr. BURKE. — Blacksmithing. Use of tools. Forging, welding, tool-dressing and tempering. Lectures and demonstrations (2 hours); laboratory work (4 hours); 5 excursions. 23 Sc. Total 23.
- 10c<sup>1</sup> hf. Mr. BURKE. — Pattern-making and Foundry Practice. Use of wood-working tools. Casting in iron and alloys. Lectures and demonstrations (2 hours); laboratory work (4 hours); 6 excursions. 25 Sc. Total 25.
- 10e<sup>2</sup> hf. Mr. BURKE. — Machine Shop Practice. Use of machine tools. Construction of parts of machinery; finishing and assembling parts. Lectures and demonstrations (2 hours); laboratory work (4 hours); 6 excursions. 26 Sc. Total 26.
- For Undergraduates and Graduates:—*
- 4e<sup>2</sup> hf. Mr. MCCLINTOCK. — Construction and Maintenance of Common Roads. Lectures and discussions (3 hours); excursions. 1 Se., 1 So., 21 Sc. Total 23.
- 5a. Professor HOLLIS. — Analytic and Applied Mechanics. Problems in Statics and Kinetics. Lectures (3 hours) and problems. 2 Ju., 47 Sc. Total 49.
- 5b<sup>1</sup> hf. Asst. Professor JOHNSON. — Elementary Statics. Graphical and Analytical Methods. Lectures (1 or 2 hours); drawing (4 to 5 hours). 1 Se., 8 Sc. Total 9.
- 5c<sup>1</sup> hf. Professor HOLLIS. — Resistance of Materials. Lectures (3 hours) and problems. 20 Sc. Total 20.



- 5d<sup>2</sup> hf. Asst. Professor JOHNSON. — Elementary Structural Design. Lectures (1 or 2 hours) and conferences; problems; laboratory work (4 to 5 hours).  
1 Se., 7 Sc. Total 8.
- 6a<sup>2</sup> hf. Messrs. TURNER and HUGHES. — Hydraulics and Hydraulic Motors. Flow of water in pipes. Water wheels, turbines, and pressure engines. Lectures and conferences (3 hours); problems.  
1 Se., 1 Ju., 41 Sc. Total 43.
- 6c<sup>1</sup> hf. Mr. RICE. — Water Supply and Sanitary Engineering. 3 hours.  
7 Sc. Total 7.
- 6d<sup>2</sup> hf. Mr. TURNER. — Canals, Rivers, and Irrigation. Measurements of the flow of water. Construction of irrigation works. Lectures (3 hours); laboratory work (10 weeks, 6 hours); field work (3 weeks, 6 hours); 4 reports.  
7 Sc. Total 7.
- 7a. Asst. Professor JOHNSON. — Bridges and Buildings. Graphical Statics. Details of iron and steel construction. Lectures and conferences; draughting; excursions. 10 hours.  
6 Sc. Total 6.
- 8a<sup>2</sup> hf. Asst. Professor JOHNSON. — Masonry and Foundations. Lectures (3 hours).  
1 Se., 24 Sc. Total 25.
- 11a. Mr. MARKS. — Machinery and Boilers. Description of the different types of Engines and Boilers. Elements of Thermodynamics. Lectures (3 hours), collateral reading, and problems; 5 excursions of 3 hours each.  
2 Ju., 1 So., 44 Sc. Total 47.
- 11b<sup>2</sup> hf. Professor HOLLIS. — Steam Engine and Boilers. General theory and design. Valve gears and governors. Lectures (3 hours) and problems.  
1 Ju., 26 Sc. Total 27.
- 12a<sup>1</sup> hf. Mr. MARKS. — Efficiency and Economics of Engines and Boilers. Lectures (3 hours) and problems.  
12 Sc. Total 12.
- 12c<sup>2</sup> hf. Mr. BURKE. — Heating and Ventilation of Buildings. Lectures (3 hours) and problems; 2 reports; 1 excursion.  
9 Sc. Total 9.
- 13a hf. Mr. MARKS. — Engineering Laboratory. General course in experimental methods. Lectures (1 hour) and laboratory work (3 hours); 26 reports.  
1 Ju., 41 Sc. Total 42.
- 13b. Mr. MARKS. — Engineering Laboratory. Advanced course in experimental engineering. Special investigations. Lectures (1 hour); laboratory work (9 hours); reports.  
8 Sc. Total 8.
- 14a. Mr. MOSES. — Machine Design. Designing the parts of machinery. Methods of proportioning the parts for strength and effect. Lectures (1 hour); problems and draughting (6 hours). 1 Ju., 29 Sc. Total 30.
- 14b. Professor HOLLIS and Mr. BURKE. — Machine Design. Completed designs of machinery with estimates and specifications for contractors. Lectures (1 hour) and drawing (8 hours).  
8 Sc. Total 8.
- 16c<sup>1</sup> hf. Asst. Professor ADAMS and Mr. WHITING. — Direct Current Dynamo Electric Machinery. Theory, testing, and practice in management. Lectures (3 hours) and problems; laboratory work (5 hours).  
38 Sc. Total 38.

- 16<sup>e</sup> *hf.* Asst. Professor ADAMS and Mr. WHITING. — Alternating Currents and Alternating Current Machinery. Theory and testing. Lectures (3 hours) and problems; laboratory work (5 hours). 1 Se., 33 Sc. Total 34.
- 16<sup>d</sup> Asst. Professor ADAMS and Mr. WHITING. — Direct and Alternating Current Machinery. A continuation of Courses 16<sup>c</sup> and 16<sup>e</sup>, with practice in design and construction. Lectures (1 or 2 hours) and conferences; laboratory work (2 whole days). 5 Sc. Total 5.
- 17<sup>a</sup> *hf.* Asst. Professor ADAMS. — The Electrical Transmission and Distribution of Power. Lectures (2 hours) and conferences; visits to power stations (one whole day). 2 Gr., 5 Sc. Total 7.
- 18<sup>a</sup> *hf.* Mr. BURKE. — Metallurgy. Manufacture and physical properties of the metals used in engineering construction. Lectures on the practical working of iron and steel. Lectures (3 hours). 1 Ju., 48 Sc. Total 49.
21. Professor HOLLIS. — Engineering Conference. The general theory of machinery and the commercial and economic questions involved in the selection of types of machinery for given localities and duties. Comparison of different methods of transmitting power. Lectures and conferences (2½ to 4½ hours); 2 reports. 17 Sc. Total 17.
- 22<sup>2</sup> *hf.* Mr. WESTENGARD. — Contracts and Specifications. The principles of Common Law as applied to contracts. Lectures (1 hour) and practice in drawing up specifications. 27 Sc. Total 27.

### Military and Naval Science.

*For Undergraduates and Graduates:—*

- 2<sup>2</sup> *hf.* Lieutenant R. C. SMITH (U. S. Navy). — Organization of the national defense; growth of armies and navies and development of tactics; operations of war; military engineering; ordnance; coast defense. Lectures (3 hours); 6 reports. 2 Gr., 32 Se., 40 Ju., 44 So., 10 Fr., 1 Sp., 15 Sc., 2 Law. Total 146.

### Physics.

*Primarily for Undergraduates:—*

- Bhf.* Professor HALL and Mr. FISKE. — Experimental Physics. Lectures (1 hour) and laboratory work (2 hours); weekly reports. 6 sections. 2 Se., 3 Ju., 32 So., 26 Fr., 20 Sp., 45 Sc. Total 128.
- C.* Asst. Professor SABINE and Mr. McELFRESH. — Experimental Physics. Mechanics, sound, light, magnetism, and electricity. Lectures (1 hour) and laboratory work (4 hours). 4 sections. 3 Se., 7 Ju., 11 So., 23 Fr., 1 Sp., 24 Sc. Total 69.
1. Professor HALL and Mr. BASS. — General Descriptive Physics. Lectures (2 hours) and laboratory work (2 hours); weekly reports. 6 sections. 2 Gr., 3 Se., 7 Ju., 21 So., 10 Fr., 1 Sp., 57 Sc. Total 101.

*For Undergraduates and Graduates:—*

2. Asst. Professor SABINE. — Light and Heat. Lectures (2 hours) and laboratory work in Thermometry and Physical Optics (6 hours). 3 Gr., 1 Ju., 1 Sc. Total 5.

3. Professor B. O. PEIRCE and Mr. AYRES. — Electrostatics, Electrokinematics, and parts of Electromagnetism. Lectures (1 hour) and laboratory work (6 to 8 hours); about 30 reports; 3 theses.

5 Gr., 5 Se., 2 Ju., 2 So., 2 Sc. Total 16.

4. Professor TROWBRIDGE, Asst. Professor SABINE, and Mr. COLPITTS. — Electrodynamics, Magnetism, and Electromagnetism. Lectures (2 hours) and laboratory work (6 hours).

1 Gr., 3 Se., 3 Sc. Total 7.

- 6<sup>1</sup> hf. Professor E. H. HALL. — Elements of Thermodynamics. Lectures (3 hours); weekly reports.

2 Gr., 3 Se., 2 Sc. Total 7.

- 6<sup>2</sup> hf. Professor E. H. HALL. — Modern Developments of Thermodynamics. Lectures (3 hours); frequent reports.

6 Gr., 1 Se., 1 Sc. Total 8.

*Primarily for Graduates: —*

- ‡7 hf. Professor E. H. HALL. — The Theory of Probability and the Kinetic Theory of Gases. Lectures (1 hour).

7 Gr. Total 7.

8. Professor TROWBRIDGE. — Electrodynamics, with special reference to Periodic Currents. Lectures (3 hours) and conferences; laboratory work (2 full days); thesis.

1 Gr. Total 1.

- ‡10 hf. Professor B. O. PEIRCE. — The Mathematical Theory of Electricity and Magnetism (second course). Lectures (1 hour) and problems (about 40); one lecture by each student; theses.

8 Gr. Total 8.

COURSES OF RESEARCH.

- 20b. Professor TROWBRIDGE. — The Electromagnetic Theory of Light. Lectures (3 hours) and conferences; laboratory work (3 full days); report and theses.

1 Gr. Total 1.

- 20c. Professor B. O. PEIRCE. — Electricity and Magnetism. Investigation of special problems.

2 Gr. Total 2.

- 20d. Professor E. H. HALL. — Heat Conduction. Investigation of a special problem.

1 Gr. Total 1.

- 20e. Professor E. H. HALL. — Electromagnetism. Investigation of a special problem.

1 Gr. Total 1.

- 20f. Asst. Professor SABINE. — Light and Heat. Investigation of a special problem.

2 Gr. Total 2.

Chemistry.

*Primarily for Undergraduates: —*

- B. Dr. TORREY and Mr. BLACK. — Experimental Chemistry. Lectures (2 hours) and laboratory work (4 hours).

1 Se., 2 Ju., 11 So., 36 Fr., 5 Sp., 4 Sc. Total 59.

1. Professor JACKSON, Mr. FULLER, and Messrs. CALHANE, GAZZOLO, HENDERSON, MERIGOLD, and ROBERTSON. — General Descriptive Chemistry. Lectures (2 hours) and recitations (1 hour); laboratory work (2 hours).

2 Gr., 16 Se., 30 Ju., 45 So., 44 Fr., 8 Sp., 125 Sc. Total 270.

- 2<sup>1</sup> hf. Dr. TORREY. — Organic Chemistry (elementary course). Lectures (3 hours).

2 Gr., 17 Se., 28 Ju., 17 So., 3 Fr., 1 Sp., 9 Sc. Total 77.

3. Mr. SYLVESTER, and Messrs. DOW, MALLINCKRODT, WAITT, WHEELER, and S. E. WILLIAMS. — Qualitative Analysis. Laboratory work (9 to 12 hours), with occasional lectures.

1 Gr., 12 Se., 30 Ju., 27 So., 2 Fr., 1 Sp., 28 Sc. Total 101.

4. Mr. BAXTER and Mr. S. E. WILLIAMS. — Quantitative Analysis, gravimetric and volumetric. Laboratory work (9 to 12 hours), with occasional lectures.

3 Gr., 5 Se., 7 Ju., 4 So., 1 Fr., 8 Sc. Total 28.

*For Undergraduates and Graduates:—*

- 8<sup>2</sup> hf. Asst. Professor RICHARDS. — History of Chemistry and Chemical Theory. Lectures (2 hours) and collateral reading; thesis.

1 Gr., 12 Se., 18 Ju., 10 So., 1 Fr., 1 Sp., 9 Sc., 1 Me. Total 53.

- 9<sup>1</sup> hf. Asst. Professor RICHARDS. — Advanced Quantitative Analysis. Lectures (2 hours) and conferences; laboratory work (6 to 8 hours); 10 reports.

1 Se., 1 Ju., 2 Sc. Total 4.

- 10<sup>2</sup> hf. Asst. Professor RICHARDS. — Gas Analysis. Lectures (1 hour) and conferences; laboratory work (8 hours).

1 Se., 1 Ju., 1 Sc. Total 3.

5. Professor H. B. HILL and Mr. WHEELER. — The Carbon Compounds. The theories of Organic Chemistry and the properties of the more important compounds. Ultimate organic analyses. Preparation of organic compounds in the laboratory. Lectures (3 hours) and laboratory work (at least 6 hours); 25 reports.

7 Se., 1 Ju., 5 Sc. Total 13.

*Primarily for Graduates:—*

6. Asst. Professor RICHARDS and Mr. HEIMROD. — Physical Chemistry. Lectures (2 hours) and conferences; laboratory work (6 hours).

4 Gr., 3 Se., 3 Sc. Total 10.

COURSES OF RESEARCH.

- 20a. Asst. Professor RICHARDS. — Inorganic Chemistry, including determination of atomic weights. Daily conferences and laboratory work; thesis.

2 Gr., 3 Sc. Total 5.

- 20b. Professor JACKSON. — Organic Chemistry. Conferences and laboratory work (30 to 40 hours).

8 Gr., 1 Sc. Total 9.

- 20c. Professor H. B. HILL. — Organic Chemistry. Daily conferences and laboratory work.

4 Gr. Total 4.

- 20d. Asst. Professor RICHARDS. — Physical Chemistry. Daily conferences and laboratory work; thesis.

3 Gr., 1 Sc. Total 4.

**Botany.**

*Primarily for Undergraduates:—*

- 1<sup>2</sup> hf. Professor GOODALE and Mr. OLIVE. — Botany (introductory course). Lectures (2 hours) and laboratory work (4 hours).

6 Se., 19 Ju., 19 So., 31 Fr., 8 Sp., 18 Sc. Total 101.

- 2<sup>1</sup> hf. Asst. Professor THAXTER. — Morphology of Plants. Lectures and recitations (3 hours); laboratory work (6 hours).

4 Gr., 4 Se., 8 Ju., 11 So., 1 Fr., 1 Sp., 17 Sc. Total 46.



*For Undergraduates and Graduates:—*

3. Professor GOODALE and Messrs. OLIVE and AMES.—Botany (second course). Morphology, histology (with special reference to the technique of the microscope), and physiology of flowering plants. Lectures (2 hours) and demonstrations, with laboratory work (6 hours).

5 Gr., 4 Se., 2 Ju., 1 So., 6 Sc. Total 18.

- 4<sup>2</sup> *hf.* Asst. Professor THAXTER.—Cryptogamic Botany. Lectures (2 or 3 hours) and laboratory work (at least 6 hours); field work (voluntary).

6 Gr., 2 Se., 1 Ju., 1 Sc. Total 10.

*Primarily for Graduates:—*

## COURSES OF RESEARCH.

- 20a. Professor GOODALE.—Structure and Development of Phanerogams. Experimental Vegetable Physiology. Economic Botany, with special reference to *Materia Medica*.

5 Gr., 1 Se., 1 Sc. Total 7.

- 20b. Asst. Professor THAXTER.—Structure and Development of Cryptogams. Laboratory work (9 to 12 hours); field work; thesis.

4 Gr., 1 Ju. Total 5.

## Zoölogy.

*Primarily for Undergraduates:—*

- 1<sup>1</sup>. Dr. C. B. DAVENPORT, Mr. S. R. WILLIAMS, and Messrs. TOWER, FOLSOM, and YERKES.—Zoölogy (introductory course). Lectures (2 or 3 hours) and laboratory demonstrations (3 hours); visit to museum.

1 Gr., 7 Se., 22 Ju., 30 So., 23 Fr., 6 Sp., 33 Sc. Total 122.

- 2<sup>2</sup> *hf.* Drs. G. H. PARKER and CASTLE, Messrs. PRENTISS and YERKES.—Morphology of Animals. Lectures (2 or 3 hours) and laboratory work (6 hours); one excursion.

4 Se., 6 Ju., 7 So., 1 Fr., 2 Sp., 13 Sc. Total 33.

*For Undergraduates and Graduates:—*

3. Dr. G. H. PARKER and Mr. FRANDSEN.—Comparative Anatomy of Vertebrates. Lectures (2 hours), laboratory work (6 hours); visit to museum.

6 Gr., 6 Se., 6 Ju., 2 So., 14 Sc. Total 34.

- 4<sup>1</sup> *hf.* Dr. CASTLE and Mr. H. W. RAND.—Microscopical Anatomy. Lectures (3 hours) and laboratory work (6 hours).

2 Gr., 4 Se., 1 Ju., 5 Sc. Total 12.

- 5<sup>2</sup> *hf.* Dr. CASTLE and Mr. W. H. RAND.—Embryology of Vertebrates. Lectures (2 hours) and laboratory work (7 hours).

3 Gr., 2 Se., 1 Ju., 4 Sc. Total 10.

9. Dr. R. T. JACKSON.—Fossil Invertebrates. Lectures (2 hours) and laboratory work (5 hours).

2 Gr., 1 Sc. Total 3.

10. Dr. C. B. DAVENPORT.—Experimental Morphology. Phylogenesis studied as a process. Lectures (2 hours) and conferences; laboratory work (at least 6 hours); 3 reports; thesis.

9 Gr., 1 Sc. Total 10.

- 16<sup>1</sup> *hf.* Dr. G. H. PARKER.—The Nervous System and its Terminal Organs. Central nervous organs and terminal organs of efferent nerves. Lectures (3 hours); thesis.

7 Gr., 1 Ju., 4 Sc. Total 12.

*Primarily for Graduates:—*

## COURSE OF RESEARCH.

- 20a. Drs. C. B. DAVENPORT, G. H. PARKER, and W. E. CASTLE. — *Anatomy and Development of Vertebrates and Invertebrates*. Weekly conferences and meetings for reports and discussions; laboratory work (10 to 40 hours). 12 Gr., 3 Sc. Total 15.

*Primarily for Graduates:—*

## Geology and Geography.

- A<sup>1</sup> hf. Dr. DALY. — *Elementary Physiography*. Lectures (3 hours), recitations (1 hour) and laboratory (2 hours); 15 reports.  
2 Gr., 16 Ju., 42 So., 10 Fr., 2 Sp., 32 Sc. Total 104.
- B<sup>2</sup> hf. Mr. WARD. — *Meteorology (elementary course)*. Lectures (3 hours), written exercises, observations, and laboratory work (at least 1 hour); 9 reports. 1 Gr., 10 Ju., 52 So., 19 Fr., 7 Sp., 34 Sc. Total 123.
- 4 hf. Professor SHALER and Mr. WOODMAN. — *Elementary Geology*. Lectures (2 hours) with collateral reading; excursions (voluntary).  
3 Gr., 3 Se., 54 Ju., 123 So., 121 Fr., 24 Sp., 65 Sc. Total 393.
- 5<sup>2</sup> hf. Mr. J. B. WOODWORTH and Messrs. WOODMAN, BURR, and R. E. BURKE. — *Elementary Field and Laboratory Geology*. Laboratory work in February and March (4 hours); field and laboratory work in April and May (4 hours); collateral reading; 7 reports.  
1 Gr., 1 Se., 12 Ju., 24 So., 27 Fr., 6 Sp., 58 Sc. Total 129.

*For Undergraduates and Graduates:—*

8. Mr. J. B. WOODWORTH and Mr. WOODMAN. — *General Critical Geology*. Lectures (2 hours) and collateral reading; field work in October, April, and May (5 hours); 12 reports; thesis.  
2 Gr., 3 Se., 3 Ju., 3 So., 6 Sc. Total 17.
- 9<sup>2</sup> hf. Dr. JAGGAR. — *Structural and Dynamical Geology of the United States*. Lectures, illustrated by experiments (2 hours), with library work and conferences; 2 reports. 5 Gr., 1 Se., 2 Ju., 1 So., 4 Sc. Total 13.
- 16<sup>1</sup> hf. Mr. J. B. WOODWORTH. — *Glacial Geology*. Lectures (2 hours) and conferences; laboratory or field work (6 hours). 1 Ju., 4 Sc. Total 5.
- 19<sup>1</sup> hf. Mr. WARD. — *Climatology*. Lectures (3 hours), and conferences; library work; thesis. 6 Se., 4 Ju., 3 So., 6 Sc. Total 19.
- 25<sup>2</sup> hf. Mr. WARD. — *Special Climatology*. Lectures (3 hours) and library work. 1 Gr., 8 Se., 3 Ju., 3 So., 4 Sc. Total 19.
- 14 hf. Professor SHALER and Dr. R. T. JACKSON. — *General Palaeontology*. Lectures (6 hours) with collateral reading; thesis.  
1 Gr., 12 Se., 2 Ju., 4 So., 3 Sp., 8 Sc. Total 30.
- 14a hf. Dr. R. T. JACKSON. — *General Palaeontology*. Lectures (1 hour) and laboratory work (4 hours). 2 So., 1 Sp., 6 Sc. Total 9.
15. Professor SHALER and Dr. R. T. JACKSON. — *Historical Geology*. Lectures and laboratory work, with conferences (2 hours). 1 Gr., 2 Sc. Total 3.

10. Asst. Professor SMYTH. — Mining Geology. The origin and geological relations of ore deposits. Lectures (3 hours).  
2 Gr., 3 Se., 1 Ju., 6 Sc. Total 12.

- 18<sup>1</sup> hf. Professor SHALER and Asst. Professor SMYTH. — Economic Geology. Non-metalliferous products and water supply. Lectures (2 hours) and conferences; thesis.  
2 Gr., 1 Se., 1 Ju., 1 So., 3 Sc. Total 8.

*Primarily for Graduates: —*

- 22a. Professors SHALER and WOLFF, Asst. Professor SMYTH, Dr. JAGGAR, and Mr. J. B. WOODWORTH. — Advanced Geological Field Work. Field and library work, with reports, conferences, and theses.  
3 Gr., 1 Se., 2 Ju., 1 So., 2 Sc. Total 9.
- 22b. Professor SHALER and other instructors in the Division. — Geological Investigation in the Field and Laboratory. 3 Gr., 3 Sc. Total 6.
24. Professor SHALER and Dr. R. T. JACKSON. — Advanced Palaeontology. Laboratory work and theses. 1 Gr. Total 1.

**Mineralogy and Petrography.**

*Primarily for Undergraduates: —*

2. Professor WOLFF and Drs. PALACHE and EAKLE. — Mineralogy (including Crystallography, Physical and Chemical Mineralogy, and Descriptive Mineralogy). Lectures (3 hours); laboratory work, with recitations (5 to 6 hours).  
1 Gr., 1 Se., 3 Ju., 2 So., 16 Sc. Total 23.
- 3<sup>1</sup>. Professor WOLFF. — Building Stones. The composition, occurrence, quarrying, and uses of building stones in the United States. (For students of Architecture.) Lectures (1 hour); thesis. 12 Sc. Total 12.

*For Undergraduates and Graduates: —*

- 7<sup>1</sup> hf. Dr. PALACHE. — Crystallography. Practical exercises in the measurement, discussion, and drawing of crystals, with occasional lectures. 5 to 6 hours.  
2 Gr., 2 Se., 2 Sc. Total 6.
- 8<sup>2</sup> hf. Dr. PALACHE. — Physical Crystallography, mainly Optical Mineralogy and its applications. Lectures (2 hours) and collateral reading; laboratory work (4 hours).  
1 Se., 2 Sc. Total 3.
12. Professor WOLFF and Dr. EAKLE. — Petrography. Lectures (2 hours) and reading; laboratory work (5 to 6 hours).  
3 Gr., 3 Se., 1 Ju., 1 So., 5 Sc. Total 13.

**Mining and Metallurgy.**

- 1<sup>2</sup> hf. Asst. Professor SMYTH. — Mining. Prospecting and exploring. Lectures (2 or 3 hours); laboratory work (4 hours, for 3 weeks).  
1 Ju., 3 Sc. Total 4.
- 2<sup>1</sup> hf. Mr. FORSYTHE. — Metallurgy. Metallurgy of iron and steel, copper, and nickel. Lectures and recitations (3 hours); collateral reading; 3 reports; 2 excursions; one long excursion (voluntary) in vacation.  
1 Gr., 4 Sc. Total 5.

- 3<sup>2</sup> *hf.* Mr. FORSYTHE. — Metallurgy. Metallurgy of lead, zinc, gold, silver, and the minor metals. Lectures and recitations (3 hours); collateral reading; 3 reports; 2 excursions; one long excursion (voluntary) in vacation. 1 Gr., 1 Se., 5 Sc. Total 7.
5. Asst. Professor SMYTH. — Mining. Coal and metal mining, including excavation, development, underground and surface transportation, drainage, ventilation. Lectures (2 hours) and reading; conferences (1 hour); 2 theses. 1 Gr., 2 Sc. Total 3.
6. Mr. FORSYTHE. — Metallurgical Chemistry. The analysis of ores, metals, slags, fuels, and refractory materials. Fire assaying. Lectures (1 hour) and conferences; laboratory work (10 hours). 1 Gr., 4 Sc. Total 5.

### American Archaeology and Ethnology.

*For Undergraduates and Graduates: —*

1. Dr. RUSSELL. — General Anthropology. Somatology; Archaeology, Ethnology, and Ethnography. Lectures (3 hours) with laboratory work and study in museum; 2 theses. 18 Se, 5 Ju., 6 So., 2 Sp., 1 Sc., 2 Di. Total 34.

*Primarily for Graduates: —*

- ‡<sup>2</sup> *hf.* Dr. RUSSELL. — Somatology. Lectures and demonstrations (3 hours); laboratory work (6 hours); 2 reports. 2 Se., 1 Sc. Total 3.
- ‡<sup>3</sup> *hf.* Professor PUTNAM and Mr. DIXON. — Primitive Religions. Theories of origin, animism, totemism, fetishism, ceremonialism, symbolism, comparative mythology and folk-lore. Special study of the religions of three primitive peoples. Lectures (3 hours) and collateral reading; thesis. 2 Gr., 1 Ju., 1 So. Total 4.

### COURSE OF SPECIAL RESEARCH.

- 20a. Professor PUTNAM. — American Archaeology and Ethnology. Special study in laboratory and museum; field work during the vacation; conferences; 2 reports; thesis. 2 Gr., 1 So. Total 3.

### Anatomy, Physiology, and Hygiene.

- 1<sup>2</sup> *hf.* Asst. Professor G. W. FITZ and Dr. M. H. BAILEY. — Elementary Anatomy and Physiology. Personal Hygiene. Emergencies. Lectures (3 hours) and laboratory work (3 hours); reports. 8 Se., 10 Ju., 27 So., 7 Fr., 4 Sp., 20 Sc. Total 76.
10. Asst. Professor G. W. FITZ and Dr. BAILEY. — General Hygiene. Lectures (2 or 3 hours), demonstrations (1 hour); laboratory work (4 to 6 hours); 3 excursions; 6 reports; thesis (for those who took it as a full course). 4 Sc. Total 4.
- 4<sup>1</sup> *hf.* Dr. D. A. SARGENT. — Anthropometry. Measurements and tests of the body. Effects of age, nurture, and physical training. Lectures and practical exercises. 3 hours. 1 Sc. Total 1.




*Instruction by Doctors of Philosophy.*

The following courses were given in accordance with a vote of the President and Fellows, empowering the Faculty to authorize any Doctor of Philosophy or of Science who has been approved by the Department with which his work is most closely related, to give instruction for a period not exceeding four months, either gratuitously or for such fees as he may himself collect:—

Dr. W. P. MONTAGUE. — History of the Philosophical Movements of the Nineteenth Century. Lectures (1 hour), from February 20 to May 1.

Dr. R. A. DALY. — Oceanography. Lectures (2 hours), from February 15 to April 29. 2 Gr., 1 So., 2 Fr., 1 Sc. Total 6.

*Summer Courses of Instruction, 1899.*

The following is a list of the Courses of Instruction given during the summer of 1899, under the direction of the Faculty, with an enumeration and classification of the students taking each course. The same abbreviations are used as in the foregoing table, with the addition of the abbreviation S.S. to denote persons in attendance on the Summer School and otherwise unconnected with the University. The index  denotes courses which may be offered to count towards a degree.

## SUMMER COURSES OF 1899.

**Greek.**

II. Dr. R. P. KEEP and Mr. C. W. GLEASON. — Greek for Teachers. Discussion of elementary text-books, and of methods used in teaching beginners. Practice in reading Xenophon and Homer. 6 times a week, for 6 weeks. 1 Gr., 6 S. S. Total 7.

**Latin.**

I. (a) Asst. Professor MORGAN. — Virgil. 10 lectures.

(b) Professor GREENOUGH. — Syntax of the Latin Verb. 10 lectures.

11 S. S. Total 11.

II. Dr. M. W. MATHER. — Discussion of Beginners' Latin Books. Method of teaching Caesar and Cicero most effectively. Practice in reading and translating. 6 times a week, for 6 weeks. 22 S. S. Total 22.

**English.**

A. Mr. HURLBUT, assisted by Messrs. DORR and C. N. GREENOUGH. — English Composition (elementary course). 6 times a week, for 6 weeks.

67 S. S. Total 67.

B. Mr. J. G. HART. — English Composition (advanced course). 6 times a week, for 6 weeks.

27 S. S. Total 27.

C. Mr. YOUNG. — English Composition (second advanced course). 6 times a week, for 6 weeks.

11 S. S. Total 11.

*D.* Asst. Professor BAKER, assisted by Mr. H. B. HUNTINGTON. — English Composition (Argumentation). 6 times a week, for 6 weeks.

6 S. S. Total 6.

Dr. SCHOFIELD. — Anglo-Saxon. 6 times a week, for 6 weeks.

6 S. S. Total 6.

Asst. Professor BAKER, assisted by Mr. H. B. HUNTINGTON. — Shakspeare. 6 times a week, for 6 weeks.

17 S. S. Total 17.

Mr. HURLBUT, assisted by Mr. C. N. GREENOUGH. — English Literature of the Eighteenth Century. 6 times a week, for 6 weeks.

38 S. S. Total 38.

#### German.

I. Dr. BIERWIRTH. — Advanced Course. Reading, conversation, pronunciation, and composition. — 6 times a week, for 6 weeks.

14 S. S. Total 14.

II. Mr. COAR. — Advanced Course. Daily lectures, in German, on the history of German Literature, accompanied by the cursory reading of the Nibelungenlied and a few representative works of later periods. Interpretation of Schiller's Wallenstein, and of Goethe's Faust (Part I). Themes in German on subjects connected with the lectures or the reading.

6 times a week, for 6 weeks.

2 S. S. Total 2.

#### French.

Asst. Professor DE SUMICHRAST. — Introductory Course. Grammar, reading, and composition. 6 times a week, for 6 weeks.

1 Gr., 13 S. S. Total 14.

Asst. Professor DE SUMICHRAST. — Advanced Course. Practice in reading and translation at sight. Composition. Lectures on French Literature from the beginning of the Seventeenth Century to the present day.

6 times a week, for 6 weeks.

7 S. S. Total 7.

#### Spanish.

Dr. FORD. — Introductory Course. Grammar, translation, and composition. 6 times a week, for 6 weeks.

2 Gr., 3 S. S. Total 5.

#### History.

I. Mr. H. J. EDMISTON. — Roman History. 5 times a week, for 5 weeks.

7 S. S. Total 7.

II. Professor HART and Mr. CROSS. — American History. 5 times a week, for 5 weeks; and a 6th week of written work.

17 S. S. Total 17.

III. Mr. J. P. WARREN. — Historical Excursions.

#### Psychology.

Dr. MACDOUGALL. — Experimental Psychology. 6 times a week, for 6 weeks.

19 S. S. Total 19.

#### Education and Teaching.

I. Asst. Professor HANUS. — General Principles of Education and Courses of Study. 25 lectures. Conferences. Thesis.

1 Gr., 47 S. S. Total 48.

II. Mr. LOCKE. — History of Education. 25 lectures.

28 S. S. Total 28.


**Principles of Design.**


Dr. D. W. ROSS and Mr. H. H. CLARK. — Symmetry, Rhythm, and Harmony.  
5 times a week, for 5 weeks. 1 Bu., 1 Sc., 1 Asst., 55 S. S. Total 58.

**Mathematics.**

Mr. COOLIDGE. — Elementary Course for Teachers. Review of Elementary Algebra and Geometry from point of view of the teacher. 5 times a week, for 6 weeks. 6 S. S. Total 6.

S D. Mr. LOVE. — Advanced Algebra. 5 times a week, for 6 weeks.  
1 Sc., 10 S. S. Total 11.

 S1. Mr. ASHTON. — Elementary Solid Geometry. 5 times a week, for 6 weeks.  
1 So., 2 Sp., 1 Sc., 5 S. S. Total 9.


 S2. Mr. LOVE. — Plane Trigonometry. Logarithms. Problems in the calculation of heights, distances, and areas. 5 times a week, for 6 weeks.  
1 So., 2 Sp., 1 Sc., 5 S. S. Total 9.

S4. Mr. ASHTON. — Calculus. 5 times a week, for 6 weeks.  
2 Sc., 4 S. S. Total 6.

**Astronomy.**

Mr. REED. — Descriptive Astronomy. 5 times a week, for 6 weeks.  
4 S. S. Total 4.

**Engineering.**

 S1. Mr. TURNER. — Plane Surveying. 45 hours a week, for 7 weeks.  
1 Sc., 1 S. S. Total 2.

S2. Mr. TURNER. — Geodetic and Railroad Surveying. 45 hours a week, for 7 weeks.  
3 S. S. Total 3.

**Physics.**

Mr. McELFRESH and Professor W. D. COLLINS (Earlham College). — Elementary Physics. 5 times a week, for 6 weeks.  
1 So., 26 S. S. Total 27.

Asst. Professor SABINE. — Advanced Physics. 5 times a week, for 6 weeks.  
2 Sc., 10 S. S. Total 12.


**Chemistry.**

Dr. TORREY and Messrs. WHEELER and HEIMROD. — Elementary Theoretical and Descriptive Chemistry. 6 times a week, for 6 weeks.  
22 S. S. Total 22.

Dr. TORREY. — Advanced Chemistry. 6 times a week, for 6 weeks.  
2 S. S. Total 2.

Dr. TORREY. — Organic Chemistry. 6 times a week, for 6 weeks.  
5 S. S. Total 5.

**Botany.**

 S1. Mr. OLIVE and Mr. KING. — Vegetable Morphology and Systematic Botany. Laboratory work. 5 times a week, for 6 weeks.  
4 Ju., 2 So., 2 Sc., 13 S. S. Total 21.

**Geology.**

- ☞ S1. Professor SHALER, Mr. WOODMAN, and other instructors in the Division of Geology. — Elementary Geology. 6 times a week, for 6 weeks.  
3 Ju., 6 So., 1 Fr., 2 Se., 10 S. S. Total 22.
- ☞ S2. Mr. WOODWORTH, with coöperation of Professor SHALER. — Field work from Niagara Falls to the Rocky Mountains. From July 6 to August 16.  
2 Se., 6 So., 2 Sc., 3 S. S. Total 13.
- ☞ S3. Professor SHALER. — Training in field research and in the methods of professional geological field work. 1 Sc., 1 Jr., 1 S. S. Total 3.

**Geography.**

- Dr. DALY and Mr. G. R. TWISS. — Elementary Physiography. 6 times a week, for 6 weeks.  
29 S. S. Total 29.

**Physical Training.**

- Dr. SARGENT and assistants. — Physical Training.  
1 So., 1 Fr., 70 S. S. Total 72.

*Instruction provided for 1899-1900.*

The Announcement of Courses of Instruction for 1899-1900 was issued as usual in pamphlet form near the close of the last academic year, and may be found, corrected to date, in the Annual Catalogue of the present year. The total amount of instruction as compared with that offered for 1898-99 shows a net increase of about ten courses. The new list contains no fundamental change of plan except in English, where the first marks of the Faculty's new policy in regard to prescribing English composition appear in the omission of English *B* (themes, prescribed for Sophomores), and in the intimation that English *C* (forensics, prescribed for Juniors), which is retained this year solely for the benefit of those who have a condition in it to make up, will also be dropped from the list. Acting on the advice of the Department of English, the Faculty voted to discontinue the prescribed course in forensics, and to unite English *A* and English *B* to form one full course, — more substantial than the old English *A*, — to be prescribed for Freshman. This vote was qualified, however, by the provision that a student who passed in the old English *A* with a grade lower than *B*, or who passes in the new English *A* with grade *D*, must take in the ensuing year a half-course in English Composition, in addition to his regular elective work. The elective instruction in English Composition amounts at present to five full courses and three half-courses.



The list contains, as usual, many changes of detail, especially changes of instructors or of the plan of instruction in some of the courses that are given regularly every year, and changes due to alternation or rotation among the more advanced courses. There were also some changes of arrangement. Into these minor changes it seems unnecessary to enter here. On the other hand, the following courses, which are distinct additions to the list, may properly receive special notice : —

Asst. Professor GULICK. — Greek for beginners.

Asst. Professor C. P. PARKER. — Plato (rapid reading and interpretation of selected dialogues.) *Hf.*

Asst. Professor CLIFFORD H. MOORE. — Theocritus, Bion, and Moschus. *Hf.*

Asst. Professor HOWARD. — The reigns of Claudius and Nero, studied in Suetonius and Tacitus. *Hf.*

Professor MINTON WARREN. — Interpretation of Latin inscriptions important for their language or content.

Asst. Professor CLIFFORD H. MOORE. — Roman provincial administration.

Messrs. GARDINER and LA ROSE. — English Composition (a course for students who have passed in English A; parallel to English 31 and English 32).

Dr. MAYNADIER. — English Literature : the story of King Arthur from Mallory to the present time. *Hf.*

Mr. COPELAND. — English Literature : English Letter Writers. *Hf.*

Mr. GARDINER. — English Literature : the English Bible. *Hf.*

Mr. NICHOLS. — German Literature in the second half of the Nineteenth Century. *Hf.*

Associate Professor DE SUMICHRAST and Mr. BRUN. — French Life in the Seventeenth and Eighteenth Centuries, described and illustrated by the literature and works of art.

Mr. BABBITT. — Literary criticism in France during the Nineteenth Century. *Hf.*

Asst. Professor PLATNER. — Early Christian Literature (seminary course).

Professor BEALE. — The Conflict of Laws. *Hf.*

Dr. JOHN CUMMINGS. — Ethnology in its applications to economic and social problems (seminary course). *Hf.*

Asst. Professor SANTAYANA and Professor ROYCE. — The origin and forms of moral life. Contemporary ethical controversies.

Asst. Professor HANUS. — The school systems of England, France, and Germany. *Hf.*

Asst. Professor C. P. PARKER. — The methods and equipment of a teacher of the Classics in secondary schools. *Hf.*

Mr. EDWARD ROBINSON. — Classical Archaeology : study of Greek vases; exercises in special topics in Greek art.

Dr. ROSS. — Theory of Design.

Dr. BOUTON. — Lie's theory of Continuous Groups.

Asst. Professor SMYTH. — Mining Geology (advanced course).

Professor PUTNAM and Dr. RUSSELL. — Prehistoric Archaeology. *Hf.*

Dr. RUSSELL. — American Ethnology. *Hf.*

In History, in the absence for the year of Professors EMERTON and GROSS, the Faculty has been fortunate in securing the temporary services of distinguished scholars not connected with the University : —

Rev. EDWARD H. HALL. — The development of Christian Doctrine during the first three Centuries.

Professor HASKINS (University of Wisconsin). — The early Reformation-Period (1300–1500), with especial reference to the transition from mediæval to modern institutions. *Hf.*

Professor HASKINS. — History of France to the accession of the House of Valois. *Hf.*

Professor COLBY (McGill University). — Studies in the history of democratic movements and institutions during the Middle Ages. *Hf.*

Professor COLBY. — History of Continental Europe from the beginning of the Thirty Years' War to the Peace of Utrecht. *Hf.*

#### *Administration of the Bowdoin Prizes.*

Governor James Bowdoin, who died in 1790, bequeathed to his "Alma Mater, the University at Cambridge," the sum of four hundred pounds, the interest of which was to be annually "applied in the way of premiums, for the advancement of useful and polite literature among the residents, as well graduates as undergraduates, of the University; the premiums to be paid in such way and manner as shall be best adapted to excite a spirit of emulation among such residents. The performances entitled to such premiums to be read in public by their respective authors, who shall deliver a fair copy of the same, to be lodged in the library." The principal of this fund in 1898 was \$14,598.93, and the income for the year 1897–98 was \$636.40.

The form in which the 'premiums' here provided have been offered to competition has varied. Under the system which has been in operation since 1878 definite subjects for dissertations, and (until 1897) prescribed passages for translation into Greek and Latin, have been published in each annual Catalogue, together with a statement of the prizes offered and the terms of the competition. Since 1897 essays in Greek and Latin, instead of translations, have been demanded. The latest date for the competitors to hand in their performances has been the first day of November in the following academic year, except in the case of seniors not returning after

graduation, who were allowed to compete, as being in residence in the year in which the prizes were offered, but were required, in conformity with the terms of the bequest, to hand in their essays or versions before their residence ceased, that is, before Commencement Day. Under this system there were offered —

To undergraduates, *seven* prizes of not less than \$50 nor more than \$100 each; namely: —

- For dissertations on literary, philosophical, historical, and kindred subjects, *three* prizes;
- For a dissertation on a classical subject, *one* prize;
- For a composition in Greek or Latin, *one* prize;
- For dissertations on subjects in physical and natural science, *two* prizes.

To graduates and seniors, for dissertations on any of the subjects set for undergraduates, or for compositions in Greek or Latin, *two* prizes of \$100 each.

The total amount of money offered under this system (\$900) is considerably in excess of the income of the fund. In actual experience, however, the total amount awarded has fallen far short of the income. The figures for the three years 1895-98 are as follows: —

Year.	Income.	Awarded in Prizes.
1895-96 . . . . .	\$647.35	\$350
1896-97 . . . . .	653.72	350
1897-98 . . . . .	636.40	250

In each of these years there were only four prizes awarded, out of the nine offered. In 1898-99 only two essays were presented in competition for the seven undergraduate prizes, and for the graduate prizes three essays and one Latin composition. Three prizes were awarded, amounting to \$290.

The fact, plainly apparent in these figures, that Governor Bowdoin's bequest was failing, under the existing method of administering it, to produce the results of which it was capable, led the Faculty, in March, 1898, to refer the subject to a committee for inquiry. This committee, of which Professor Royce was chairman, presented a report in May, recommending a new plan of administering the prizes. The matter had to lie over until the autumn, when the Faculty adopted, with some modifications, the plan proposed by the committee. The objects aimed at in this plan are to excite a wider interest in the competition by bringing it into closer connection with the work of the University, and to stimulate competitors to greater effort by the offer of larger prizes and by enhancing the

distinction of success. The competitors are no longer to be limited to a prescribed list of topics. Each may choose his own, subject to approval, and he is encouraged to choose one within the range of his own studies. From the graduate a much more considerable performance is expected than heretofore, and the shape which this part of the plan has necessarily taken is such that these performances may often embody the work of two or three years.

For the better administration of the prizes the plan provides for the establishment of a standing committee of seven members of the Faculty, to have full charge of all details of management, including the selection of such judges as they may find it necessary to call to their assistance; but the committee is to be itself responsible for the recommendation of the award, which it reports to the Faculty, to be transmitted, if the Faculty approves, to the President and Fellows, by whom, under the terms of the will, the award is made. Under the supervision of this committee prizes are to be offered as follows: —

To undergraduates, two prizes, of \$250 and \$200 respectively (of which the second, but not the first, may be divided between two competitors), “to be conferred upon the writers of the best contributions to ‘useful and polite literature’ offered for competition.”

To graduate students, one prize of \$300 “for an essay of high literary merit belonging to a special field of learning.”

The undergraduate competitor may write “on any subject that may be approved by the chairman of the committee as a proper subject for treatment in literary form;” and “theses that form part of the regular work of an elective course may be offered for the competition with the consent of the instructor of such course, or, subject to such consent, may be rewritten for the prize competition.”

The graduate prize is to be open to “any holder of any academic degree in arts, literature, philosophy, or science, who has been in residence in the Graduate School for one full year within a period beginning not more than three years before the time when the prize is to be awarded.”

The difficulty, amounting often to practical impossibility, of deciding on the comparative merits of essays in different special fields of learning, led the Faculty to divide these fields, for the purpose of administering the graduate prize, into three groups, —

- (a) Ancient and Modern Languages, Literature, and the Fine Arts;
- (b) Philosophy, Political Science, and History;
- (c) Mathematics and Natural Science;



and to provide that each year the prize shall be offered, in turn, in each of these groups. The subject chosen must be approved in advance by the committee, and no essay will be received which has not been approved as worthy of consideration by the Committee on Honors and Higher Degrees of the Division within whose province its subject lies.

In all cases the literary quality as well as the substance of the essays submitted will be taken into account in making the award, and no prize will be awarded if no essay be deemed worthy. The successful competitors will read their essays in public before Commencement Day, and will be named in the commencement programme.

The administration of the prizes for compositions in Greek and Latin is separated in the new plan from that of prizes for dissertations, and placed in charge of the Department of the Classics. The prizes to be offered are:—

To undergraduates,

For a translation into Greek, a prize of \$50.

For a translation into Latin, a prize of \$50.

To graduates,

For an essay in Greek or Latin, a prize of \$100.

#### *The Pasteur Medal.*

A new prize was established in 1898, in the form of a medal, which the founder, Baron Pierre de Coubertin, wishes to be called 'the Pasteur Medal', and to be awarded to the successful contestant in an annual debate on a question relating to contemporary French politics. The administration of this prize has been delegated by the Faculty to the Department of French, and the first award was made last year.

#### *Relations with Radcliffe College.*

When Radcliffe College was organized in 1894 in official relations with the University, the Faculty was authorized in its discretion, "to admit any students of Radcliffe College to any courses of instruction designed primarily for graduates, upon such terms and subject to such limitations as may be agreed upon between the said Faculty and the corresponding governing body of Radcliffe College." It was regarded as undesirable by all the parties in interest that there should be coeducation of undergraduates, and the Faculty had definitely expressed itself to that effect. Inasmuch, however, as Harvard undergraduates may be admitted, on the recommendation of the instructor in each case, to graduate courses, the admission of

Radcliffe students to these courses cannot fail to result in a certain amount of coeducation of undergraduates. The Faculty, moreover, in a very few instances, which have always been reported to the President and Fellows, has admitted properly qualified Radcliffe students to courses which, though advanced, are below the graduate list. In the minds of some members of the Faculty, who feel keenly the importance to Harvard College of keeping the instruction of undergraduates separate, this state of things, together with the rapid growth of Radcliffe, has given rise to some apprehension that we might be drifting into a larger degree of coeducation than was desirable. Accordingly the Faculty, in April, 1898, referred the matter to a committee, of which Professor Barrett Wendell was made chairman, with instructions to make a thorough investigation of the relations between the Faculty and Radcliffe College, and to report thereon to the Faculty, with any recommendations as to future relations that might seem advisable. The Committee performed the duty assigned to it with thoroughness and impartiality, and the main points of its interesting and valuable report, which came before the Faculty for action early in the last academic year, deserve to be recorded here.

After giving a historical review of (1) the official relations between Harvard University and Radcliffe College, so far as they have been established by votes of the Corporation and Overseers of Harvard University and of the Faculty of Arts and Sciences, the Committee presents the results of its investigation of the following topics: (2) The extent of coeducation in Harvard and Radcliffe; (3) the relations between the standing committees of the Faculty and of Radcliffe College; (4) the amount and quality of the instruction given in Radcliffe College, and the quality of the examinations by which its efficiency is tested; (5) the administration of the rules concerning admission and degrees in Radcliffe College; and (6) official publications concerning Radcliffe.

On the second topic the Committee, premising that the actual extent of coeducation during the years 1894-97 is so small as to admit of full statement, gives detailed statistics for those years of the attendance of Harvard students in the Harvard courses open to Radcliffe students, and of the attendance of Radcliffe students in such of these courses as were actually taken by them. In the following tables I have used the Committee's figures\* for the three

\* Two courses in Education are not included in the Committee's tables because they were placed on the list of courses open to Radcliffe students for the convenience of the Department of Education, that women actually engaged in teaching might have access to them by registering in Radcliffe.

years mentioned, supplementing them with certain additional details from the records, and extending them to include the year 1898-99.

The first table shows the whole amount of Harvard instruction open to Radcliffe students in each of the five years 1894-99.

HARVARD COURSES OPEN TO RADCLIFFE STUDENTS.						Total amount of instruction provided "primarily for graduates" by the Faculty of Arts and Sciences.
Year.	Primarily for Graduates.		For Undergraduates and Graduates.		Total amount open to Radcliffe students.	
	Full courses.	Half-courses.	Full courses.	Half-courses.		
1894-95 . .	41	14	1	2	50	87½
1895-96 . .	42	12	1	1	49½	96
1896-97 . .	47	13	1	3	56	102
1897-98 . .	48	20	0	1	58½	105½
1798-99 . .	29	24	0	1	41½	106½

In many of these courses there were some Harvard undergraduates. Only a small portion, however, of the courses open to Radcliffe students were taken by them. The actual amount of resulting co-education is shown by the following table, in which the distinction between full courses and half-courses, as unimportant for our present purpose, is neglected.

HARVARD COURSES TAKEN BY RADCLIFFE STUDENTS.					
Year.	Number of courses taken.	Harvard Students therein.			Radcliffe. Students therein.
		Graduate and Professional.	Undergraduate and Special.	Total.	
1894-95 . . . . .	10	52	20	72	10
1895-96 . . . . .	17	104	33	137	22
1896-97 . . . . .	13	89	41	130	21
1897-98 . . . . .	17	123	21	144	45
1898-99 . . . . .	17	102	30	132	27
Total . . . . .	74	470	145	615	125

It appears, then, that in the Harvard courses taken by Radcliffe students in these five years there has been an average attendance of six or seven Harvard graduate and professional students, of two Harvard undergraduates and specials, and of less than two Radcliffe students. The actual data, represented in the mass by these averages, may be illustrated by those for a single year given in the table

on pages 57-88. So far as the presence of Harvard undergraduates and specials in the courses in question is concerned, it appears that in 1898-99 there was one course (Government 12) in which there were eleven, and one (Philosophy 17, a course in Education) in which there were ten, undergraduates. The remaining fifteen included three courses with two, and three with one undergraduate each; leaving nine courses in which there was no undergraduate at all.

Of the remaining topics investigated by the Committee the most important for the University, which guarantees the equivalence of the Radcliffe degrees to its own, are Nos. 4 and 5. On the former, — the amount and quality of the separate instruction given at Radcliffe and the quality of the Radcliffe examinations, the Committee reports as follows: —

“Courses were offered in Radcliffe College with the direct sanction of the Corporation by

	1894-95.	1895-96.	1896-97.	1897-98.
Professors . . . . .	23	18	25	26
Assistant Professors . . . . .	16	18	17	14
Other members of the Faculty . . . . .	14	13	18	19
Other Harvard teachers . . . . .	17	20	25	20

“Courses were actually given in Radcliffe College by

	1894-95.	1895-96.	1896-97.	1897-98.
Professors . . . . .	21	15	22	24
Assistant Professors . . . . .	15	17	16	14
Other members of the Faculty . . . . .	12	13	18	19
Other Harvard teachers . . . . .	15	19	23	23

“The question of the practical equivalence of Radcliffe courses and Harvard courses is so important that your Committee thought it worth while to make a rather careful investigation of this subject, and they have taken the year 1896-97 for detailed examination. They find that of the courses actually given in Radcliffe College in that year, 57 courses and 23 half-courses had the same instructors as the corresponding Harvard courses; 10 courses and 8 half-courses had instructors of equal College rank with the instructors of the corresponding Harvard courses; and 9 courses and 4 half-courses had instructors of lower rank than those of the corresponding Harvard courses. Of this last set the instructors in 2 courses and 4 half-courses were the assistants in the corresponding Harvard courses, and of the remaining seven two were assistant professors and all were members of the Faculty.

“In addition to the courses above mentioned, there were given 9 courses and 1 half-course of college grade but not corresponding directly to courses given in Harvard College. Of the instructors in these courses



one was a professor, one an associate professor, one an assistant professor, one other a member of the Faculty, and the remaining six were instructors and assistants in Harvard University.

“As the Harvard examination groups are recitation groups as well, and as the Radcliffe recitation groups cannot at all generally coincide with those at Harvard when so many corresponding courses have the same instructor in both institutions, the universal use of the Harvard examination papers in Radcliffe courses would greatly increase the number of ‘conflicts’ to be avoided, and would very seriously cripple the elective system.

“We find, however, that the number of such papers used is surprisingly large. They were used in 70 per cent. of the courses in 1894–95, in 67 per cent. in 1895–96, and in 63 per cent. in 1896–97.

“The soundest warrant for the grade of the work done for the degree in Radcliffe comes from the fact that the instruction and examinations are given exclusively by Harvard instructors who are perfectly familiar with Harvard standards, and who know that on the basis of their returns the President of the University is to certify that the Radcliffe degrees are equivalent to the corresponding degrees of Harvard College.”

To test conclusively the question of the equivalence of standard, detailed information was sought and obtained from the instructor of every course in Radcliffe College in regard to the nature of his course, the papers used in the examinations, and the standard applied in grading his Radcliffe, as compared with his Harvard, students. A careful analysis of the replies received leads the Committee to this gratifying conclusion: “From the almost unanimous evidence of the instructors it appears that the standards of Harvard and Radcliffe are identical.” From its inquiry into the administration of the rules concerning admission and degrees the Committee was likewise satisfied that the Harvard standard has been strictly enforced at Radcliffe.

Against the danger of coeducation spreading downward the Faculty did not think the case called for any formal regulations, since it has the matter constantly within its own control, the opening of a Harvard course to Radcliffe students never being voted for more than a single year at a time: but it took measures to have the necessary information at hand when the time for voting came. For the rest, it passed a series of votes to regulate its own practice in its dealings with Radcliffe, as follows:—

“*Voted*, That the President be requested to appoint a standing committee of the Faculty of Arts and Sciences on Instruction and Degrees in Radcliffe College, and that the President and Fellows of Harvard College be requested to authorize this action should they think such authorization necessary.

“*Voted*, That the Committee on Instruction and Degrees in Radcliffe College be directed to report annually to the Faculty for its approval all recommendations for degrees.

“*Voted*, That the appropriate committees of the Faculty be authorized but not instructed to act formally in the matter of the administration of honors and higher degrees and of second-year honors in Radcliffe College, if requested so to do by the Committee on Instruction and Degrees in Radcliffe College.

“*Voted*, That committees of the Faculty recommending candidates for final honors in Radcliffe College be requested to submit such recommendations to the Faculty for its approval before reporting them to Radcliffe College.

“*Voted*, That the Committee on Instruction and Degrees in Radcliffe College be directed, when submitting for the approval of the Faculty the list of courses which are to be open to students in Radcliffe College, to present with it printed lists which shall show, for the last academic year in which these courses have been given, the number of students in them, with the academic status of such students.

“*Voted*, That hereafter the courses which are open under the regulations of the Faculty to students of Radcliffe College shall be so designated in the catalogues and announcements of Harvard University.”

By a subsequent vote the Faculty authorized its standing Committee on Examinations for Admission to take charge of the books written by candidates for admission to Radcliffe College. Hitherto the Radcliffe books have been marked by Harvard examiners under the informal supervision of the individual members of the Committee, and the question of the candidate's admission has been decided by a committee of the Academic Board of Radcliffe. Henceforth the Harvard committee will take charge of the whole matter.

#### *Requirements for Admission to Harvard College.*

In my last report I gave a detailed account of the scheme of College admission requirements adopted by the Faculty January 4th, 1898, and of its unfavorable reception by the Board of Overseers, who voted to return it to the Faculty for further consideration, “to the end that the preparation in algebra and history now required of candidates may not be reduced.” This was in effect a request for the restoration of Elementary History and Elementary Algebra, which the new plan made elective, to their former position as studies prescribed for all candidates, — a modification of the plan which was attended with some difficulty. The removal of these two studies from the prescribed list had commended the plan to many members of the Faculty who had previously opposed it, as a well balanced scheme that went some way towards reconciling conflicting views;

and their restoration would bring back two objectionable features which had been eliminated by making them elective. It would not only leave Greek the only one of the traditional preparatory studies now made freely elective; it would further make it impossible for a candidate coming from a classical school to use the whole of his classical preparation for admission. It would produce this result by prescribing for all candidates studies aggregating 18 points out of a total of 26 points; the classical subjects (exclusive of one elementary, prescribed) aggregating 9 points; of which therefore only 8 could be counted. This difficulty would be aggravated after 1903, when the plan provided for the withdrawal of Plane Geometry (2 points) as an alternative in the prescribed list for Geometry (3 points), thus raising the aggregate of that list to 17, and shutting out two classical points. A further motive for making history and algebra elective had been to relieve the strain on the candidate that was apprehended from the increased stringency of the requirements in most of the subjects under their new definitions,—in none more than in history itself, where the increase was perhaps greater than in any other subject; nor was the Historical Department willing to give up its new requirement, adopted after conference with other colleges, in favor of one which had proved inadequate and unsatisfactory.

Accordingly the Faculty after long consideration felt itself unable to comply wholly with the wishes of the Overseers. In the revised plan, adopted March 7, 1899, Elementary Algebra was restored to the prescribed list, and to prevent this from resulting in a permanent increase in the amount of prescribed mathematics, the alternative of Plane Geometry for Geometry was extended indefinitely; but Elementary History remained an elective study. The Overseers, however, when this was submitted to them, adhered to their objection to dropping history from the prescribed list, and sent the plan back to the Faculty with their approval, conditional on its being amended in that particular. The matter was finally adjusted by making a partial reduction in the proposed requirement in Elementary History; and in this shape it was added to the prescribed list. Important changes were also made in the classical subjects. The rating of Elementary Greek was raised from three to four points, putting it on a par with Elementary Latin, and eliminating an objectionable feature of the scheme in its earlier form, by which the substitutes for Greek would have been reduced in amount as well as increased in variety; and Greek and Latin Composition were united with Advanced Greek and Advanced Latin respectively, the combined

subjects in each language counting 2 points, making a total of 4 points for the advanced classical subjects, instead of 6, as before. The net result of these two changes is a reduction of the total rating of Greek and Latin from 13 to 12 points, of which 4 are prescribed, and the remainder, 8, is exactly the number of points of elective work required for admission. This change of ratings in the advanced subjects is of course an arithmetical matter. The actual result of the pressure on the classics appears in the fact that Greek Composition is made optional, since it was not deemed expedient to exact it as part of the Advanced Greek; and the scheme in its final form provides no way by which it may be counted either towards the candidate's admission or for the anticipation of college work. The plan as adopted is as follows:—

The studies which may be presented in satisfaction of the requirements for admission to Harvard College are named in the following list. The figure attached to each study indicates the relative weight which will be given to that study in determining the question of the candidate's fitness for admission.

<i>Elementary.</i>	<i>Advanced.</i>
English (4).	
Greek (4).	Greek (2).
Latin (4).	Latin (2).
German (2).	German (2).
French (2).	French (2).
History (2).	History (2).
Algebra (2).	Algebra (1).
Geometry (3) or	Logarithms and Trigonometry (1).
Plane Geometry (2)	Astronomy (1).
Physics (2).	Physics (2).
Chemistry (2).	
Physiography (1).	Meteorology (1).
Anatomy, Physiology, and	
Hygiene (1).	

A candidate must offer studies aggregating twenty-six points, at least four of which must be in advanced studies. The studies offered must include:—

English . . . . .	4
One ancient language (Elem. Latin or Elem. Greek) . . . . .	4
One modern foreign language (Elem. German or Elem. French) . . . . .	2
Elementary History . . . . .	2
Elementary Algebra . . . . .	2
Geometry or Plane Geometry . . . . .	3 or 2
Studies aggregating 2 points from the following sciences:	
Elem. Physics, Chemistry, Physiography, Anatomy, etc.,	
Astronomy . . . . .	2
	<hr/> 19 or 18

No candidate for admission may offer an advanced study who does not at the same time or earlier offer the corresponding elementary study; but Physics is considered elementary with respect to Meteorology, and Geometry with respect to Astronomy.



The essential differences between the new plan and the old were fully set forth in my last report. The changes that have since been made in the new plan have resulted in leaving Greek as the only one of the old subjects that has been thrown open to free election, and in reducing the weight which classical studies may have in determining the candidates qualification for admission. As an offset to the effect which these changes are likely to have on the preparatory instruction in the classics, the following advice which the Faculty has voted to publish with the requirements, may perhaps be of service: "Those who are looking forward to the extended study of English or any other modern literature are advised to acquire a knowledge of Greek as well as of Latin." Another outcome of the new order of things is the establishment in the University this year of a course in Greek for beginners.

On the twentieth of June the President and Fellows advised the Faculty that they had voted to assent to the changes proposed "with the expectation that the Faculty will watch closely the results of the experiment." The reminder is timely. The new scheme of requirements cannot fail to affect profoundly the intellectual tone and the ideals of the academic life, coming as it does in the train of a series of new influences which have one after another ranged themselves about the College, calling for adjustment to the new conditions, if it is to render in the future the service it has rendered in the past. Within the last twenty-five years the Faculty has done much for the other departments under its charge. It has developed the Scientific School from a feeble establishment with a handful of students to a condition of remarkable prosperity; it has created a graduate school, which has already lived through the experimental stage and attained stability and strength and influence. For some years to come the chief concern of the Faculty must be Harvard College.

CLEMENT L. SMITH, *Dean.*

DECEMBER 5, 1899.

## THE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,— I have the honor of making my report on the condition of Harvard College during the academic year 1898–99.

The number of students at the beginning of the year was eighteen hundred and fifty-one:—

Seniors . . . . .	369
Juniors . . . . .	335
Sophomores . . . . .	508
Freshmen . . . . .	471
Total number of Undergraduates . . . . .	1683
Special Students . . . . .	168
	<u>1851</u>

Compared with the figures of the preceding year, these figures show a gain of thirty-two:—

	Gain.	Loss.
Seniors . . . . .	27	..
Juniors . . . . .	..	52
Sophomores . . . . .	58	..
Freshmen . . . . .	..	..
Special Students . . . . .	..	1
	<u>85</u>	<u>53</u>
	53	
Net gain . . . . .	32	

The heavy loss in the Junior class and the corresponding gain in the Sophomore are explained by the failure of many Sophomores to make up their admission conditions and thus to get standing as Juniors. The number of Freshmen was the same as in 1897–98.

Two Juniors and one Sophomore died within the academic year.

Four hundred and forty-six students (fifty-four more than in 1898) received in June the degree of Bachelor of Arts. Of these, eighty-nine (nineteen more than in 1898) were not registered as Seniors. The losses and the gains in the three younger classes between November, 1898, and November, 1899, may be learned from the following tables:—

	November, 1898.	Loss.	Gain.	November, 1899.
Class of 1900 . .	(Juniors) 335	110	86	(Seniors) 311
Class of 1901 . .	(Sophomores) 508	178	61	(Juniors) 391
Class of 1902 . .	(Freshmen) 471	93	131	(Sophomores) 509
		381	278	
Net loss in the three classes between Nov. 1898, and Nov. 1899 . . . . 103				

	Class of 1900.	Class of 1901.	Class of 1902.	Total for three classes.
LOSSES.				
Left College before the end of the year . .	11	24	22	57
Left College at the end of the year . . . .	88	24	12	124
Were "dropped" and left College . . . .	1	11	8	20
Entered a lower class . . . . .	8	69	38	115
Entered a higher class . . . . .	2	50	13	65
Total loss . . . . .	110	178	93	381
GAINS.				
From higher classes . . . . .	3	16	84	103
From lower classes . . . . .	52	13	0	65
Newly admitted . . . . .	31	32	47	110
Total gain . . . . .	86	61	131	278
Net loss . . . . .	24	117	0	103
Net gain . . . . .	0	0	38	0

The next table shows the losses and the gains in the number of Special Students since December, 1898:—

In attendance, December, 1898 . . . . .	168
Left College before the end of the year . . . . .	11
Left College at the end of the year . . . . .	50
Entered a College class . . . . .	30
Total loss . . . . .	91
Reentered College as Special Students, 1899 . . . . .	77
Newly admitted . . . . .	113
Total . . . . .	190
Net gain . . . . .	22

The Freshman class is larger than ever before : —

Admitted by examination in 1899 . . . . .	426
Admitted by examination before 1899 . . . . .	31
From a higher class . . . . .	38
“ the Special Students . . . . .	1
“ the Lawrence Scientific School . . . . .	1
Total . . . . .	<u>497</u>

Thirty-five persons who took in June some of their Final Examinations for admission did not take the remainder in September. Besides these, five hundred and eighty (seventeen more than in 1898) took Final Examinations. Of the five hundred and eighty, four hundred and fifty-five already had Preliminary certificates; seventy-three divided the examinations between June and September; thirty-one took all their examinations in June; and twenty-one took all in September : —

	Admitted.	Admitted “Clear.”	Rejected.
June . . . . .	411	190	47
September . . . . .	95	14	27
Total . . . . .	<u>506</u>	<u>204</u>	<u>74</u>

The five hundred and eighty candidates chose their plans of admission as follows : —

Plan (a): All the Elementary Studies and at least two Advanced Studies; sixteen hours of examination . . . . .	216
Plan (b): All the Elementary Studies except either German or French, and at least three Advanced Studies; seventeen hours of examination . . . . .	319
Plan (c): All the Elementary Studies except either Greek or Latin, and at least four Advanced Studies, including Advanced Mathematics; eighteen hours of examination . . . . .	43
Plan (d): All the Elementary Studies except either German or French and either Greek or Latin, and at least five Advanced Studies, including Advanced Mathematics; nineteen hours of examination . . . . .	<u>2</u>
	580

The only plan that has gained in numbers since last year is plan (b).



The next table shows the comparative success of the four plans : —

	Admitted.	Rejected.	Percentage of Failure.
Plan (a) . . . . .	188	28	13 —
“ (b) . . . . .	280	39	12 +
“ (c) . . . . .	36	7	16 +
“ (d) . . . . .	2	..	..
	<u>506</u>	<u>74</u>	

The percentage of failure among the five hundred and eighty candidates is nearly thirteen.

Of the five hundred and eighty candidates, four hundred and ninety-three offered Ancient History rather than Modern; seventy, Modern rather than Ancient; one, both Ancient and Modern; and sixteen, neither. Four hundred and sixty-four candidates, or exactly four fifths, offered Experimental Physics rather than Descriptive. In Advanced Studies, Greek has regained a higher place than French; but in the table of relative attractiveness all the other subjects hold the positions that they held a year ago : —

1897.	1898.	1899.
1. Latin.	Latin.	Latin.
2. Latin Composition.	Latin Composition.	Latin Composition.
3. Greek.	French.	Greek.
4. French.	Greek.	French.
5. Greek Composition.	Greek Composition.	Greek Composition.
6. Solid Geometry.	Solid Geometry.	Solid Geometry.
7. Log. and Trig.	German.	German.
8. { German.	Log. and Trig.	Log. and Trig.
9. { Chemistry.	Chemistry.	Chemistry.
10. Algebra.	Algebra.	Algebra.
11. Analytic Geometry.	Analytic Geometry.	Analytic Geometry.
12. Physics.	Physics.	Physics.

The next table gives the details on which the foregoing table is based, and shows that Latin has still a long lead over other Advanced Studies : —

Number of candidates offering	1897.		1898.		1899.	
	Per cent.		Per cent.		Per cent.	
Advanced Greek . . . . .	332	58.1	312	55.42	357	61.55
Advanced Latin . . . . .	474	83.1	464	82.42	531	91.55
Greek Composition . . . . .	302	52.8	274	48.67	298	51.38
Latin Composition . . . . .	354	61.9	335	59.5	394	67.92
Advanced German . . . . .	93	16.2	141	25.04	121	20.86
Advanced French . . . . .	303	53.06	315	55.95	343	60
Logarithms and Trigonometry	107	18.7	125	22.20	118	20
Solid Geometry . . . . .	128	22.4	142	25.22	143	24.65
Analytic Geometry . . . . .	18	3.1	26	4.62	17	2.93
Advanced Algebra . . . . .	51	8.9	51	9.06	46	7.93
Advanced Physics . . . . .	9	1.5	6	1.07	8	1.38
Advanced Chemistry . . . . .	93	16.2	85	15.1	92	15.86

The next two tables show, for each study, the percentage of failure (*A*) in the complete records of the candidates, including the records of their successful Preliminary Examinations, and (*B*) in their records at Final Examinations only:—

( <i>A</i> )	1894.	1895.	1896.	1897.	1898.	1899.
ELEMENTARY STUDIES.						
English . . . . .	9.5	9.2	8	10.9	8.7	9.6
Greek . . . . .	6.5	5	9.7	5.4	7.86	10.6
Latin . . . . .	4	2.5	6.8	4.5	6.75	4.65
German . . . . .	22	21	23.8	24.9	17.07	22.97
French . . . . .	7	3	9.8	6.2	3.54	6.65
History (Ancient) . . . . .	6	5	4.8	9.09	9.41	5
History (Modern) . . . . .	12.5	10.2	9.6	17.1	7	10
Algebra . . . . .	12.5	14.8	17.4	16.04	14.56	16.55
Plane Geometry . . . . .	25	15.6	23.1	15.02	26.29	25.7
Physics (Descriptive) . . . . .	34	41	43.1	28.7	27.05	47.37
Physics (Experimental) . . . . .	15	11.6	14.1	16.9	12.65	18.53
ADVANCED STUDIES.						
Greek . . . . .	17	13	16.1	7.5	12.5	14.28
Latin . . . . .	22	23.7	24.5	19.1	15.73	20
Greek Composition . . . . .	17	19.3	21.6	22.8	16.06	20
Latin Composition . . . . .	19	12.5	19.2	14.1	15.52	25.63
German . . . . .	16.7	17.7	28.2	32.2	14.18	26.61
French . . . . .	13	7.3	23.8	15.5	17.78	18.37
Logarithms and Trigonometry . .	23	36.3	42.7	27.1	41.60	26.17
Solid Geometry . . . . .	33.5	24.6	40.2	33.5	26.76	20.98
Analytic Geometry . . . . .	16.7	30	50	27.7	50	23.53
Algebra . . . . .	26	23.5	36.6	54.9	43.14	35
Physics . . . . .	33.3	0	57.1	55.5	16.67	37.5
Chemistry . . . . .	4	7	14.8	16.1	15.29	18.48

(B) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	1898.	1899.		1898.	1899.
English . . . . .	11.69	15.85	Greek . . . . .	12.7	16.77
Greek . . . . .	21.31	41.8	Latin . . . . .	16.55	25
Latin . . . . .	22.09	21.42	Greek Composition . .	25.58	32.41
German . . . . .	26.77	46.3	Latin Composition . .	23.32	42.26
French . . . . .	7.66	21.65	German . . . . .	20	30
History (Ancient) . .	20.98	14	French . . . . .	23.73	29.44
History (Modern) . .	10.61	14.3	Log. and Trig. . . .	43.7	36.93
Algebra . . . . .	32.67	44.65	Solid Geometry . . .	28.36	31.25
Plane Geometry . . .	38.44	39.17	Analytic Geometry . .	52	26.66
Physics (Descriptive) .	31.52	40	Algebra . . . . .	47.83	45.71
Physics (Experimental)	14.92	27	Physics . . . . .	16.67	60
			Chemistry . . . . .	17.33	23.61

Six hundred and eighteen candidates (twenty-seven more than in 1898) took Preliminary Examinations; of whom five hundred and twenty-two (forty-one more than in 1898) received certificates:—

Number of candidates who received certificates for examinations occupying	1894.	1895.	1896.	1897.	1898.	1899.
Less than five hours . . .	7	6	2	8	9	17
Five hours . . . . .	40	56	56	61	55	65
Six " . . . . .	55	52	80	66	73	74
Seven " . . . . .	99	75	74	83	84	90
Eight " . . . . .	102	89	93	80	86	104
Nine " . . . . .	74	63	64	102	86	82
Ten " . . . . .	24	18	30	28	31	31
Eleven " . . . . .	11	20	32	18	32	25
Twelve " . . . . .	5	3	10	6	14	17
Thirteen " . . . . .	2	3	2	8	8	6
Fourteen " . . . . .	..	1	6	5	3	10
Fifteen " . . . . .	..	..	1	..	..	1
Sixteen " . . . . .	..	1	..	..	..	..
Received certificates . .	419	387	450	465	481	522
Failed . . . . .	82	82	112	94	110	96
Total number of candidates	501	469	562	559	591	618

The percentages of failure in Preliminary Studies are generally lower than they were last year : —

ELEMENTARY.			ADVANCED.		
	1898.	1899.		1898.	1899.
English . . . . .	28.16	30.33	Greek . . . . .	58.33	55.55
Greek . . . . .	8.88	15.17	Latin . . . . .	40.	53.
Latin . . . . .	25.04	17.33	Greek Composition . .	37.59	20.
German . . . . .	20.09	32.82	Latin Composition . .	27.74	32.65
French . . . . .	19.21	15.31	German . . . . .	11.11	18.51
History (Ancient) . .	21.01	5.21	French . . . . .	21.90	28.32
History (Modern) . .	25.30	16.66	Log. and Trig. . . . .	54.55	41.66
Algebra . . . . .	24.14	38.3	Solid Geometry . . . .	36.11	40.
Geometry . . . . .	46.01	40.92	Analytic Geom . . . . .	75.	100.
Physics (Descriptive) .	27.78	25.	Algebra . . . . .	44.44	71.43
Physics (Experimental)	9.45	16.81	Physics . . . . .	00.	Not offered
			Chemistry . . . . .	27.27	38.46

In printing statistics of “Credits” won at the examinations for admission to College, I give (*A*) the “Credits” won this year at Final Examinations; (*B*) those won last year and this year by the Final candidates of this year; and (*C*) those won this year at Preliminary Examinations : —

( <i>A</i> ) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	June.	Sept.		June.	Sept.
English . . . . .	13	3	Greek . . . . .	39	3
Greek . . . . .	38	3	Latin . . . . .	63	7
Latin . . . . .	23	7	Greek Composition . .	4	0
German . . . . .	5	2	Latin Composition . .	7	0
French . . . . .	51	2	German . . . . .	19	0
History (Ancient) . .	7	0	French . . . . .	48	2
History (Modern) . .	5	0	Log. & Trig. . . . .	4	1
Algebra . . . . .	7	0	Solid Geometry . . . .	3	0
Plane Geometry . . .	5	0	Analytic Geometry . .	1	0
Physics (Descriptive) .	5	1	Algebra . . . . .	0	0
Physics (Experimental)	36	0	Physics . . . . .	0	0
			Chemistry . . . . .	9	0
	195	18		197	13



(B) ELEMENTARY.		ADVANCED.	
English . . . . .	21	Greek . . . . .	43
Greek . . . . .	91	Latin . . . . .	73
Latin . . . . .	97	Greek Composition . . . . .	18
German . . . . .	33	Latin Composition . . . . .	10
French . . . . .	68	German . . . . .	24
History (Ancient) . . . . .	17	French . . . . .	48
History (Modern) . . . . .	8	Log. and Trig. . . . .	5
Algebra . . . . .	84	Solid Geometry . . . . .	6
Geometry . . . . .	8	Analytic Geometry . . . . .	1
Physics (Descriptive) . . . . .	6	Algebra . . . . .	2
Physics (Experimental) . . . . .	56	Physics . . . . .	0
		Chemistry . . . . .	10
	489		240

(C) ELEMENTARY.		ADVANCED.	
English . . . . .	2	Greek . . . . .	0
Greek . . . . .	123	Latin . . . . .	1
Latin . . . . .	110	Greek Composition . . . . .	3
German . . . . .	7	Latin Composition . . . . .	2
French . . . . .	88	German . . . . .	6
History (Ancient) . . . . .	18	French . . . . .	27
History (Modern) . . . . .	2	Log. and Trig. . . . .	1
Algebra . . . . .	44	Solid Geometry . . . . .	2
Geometry . . . . .	3	Analytic Geometry . . . . .	0
Physics (Descriptive) . . . . .	0	Algebra . . . . .	0
Physics (Experimental) . . . . .	13	Physics . . . . .	0
		Chemistry . . . . .	2
	408		44

In 1898, for the first time, candidates might offer themselves for examination according to the "New Definitions" of certain old, established studies. The following table shows the number of persons examined according to the "New Definition" in each newly defined subject. Whatever Preliminary candidates and whatever candidates for the Scientific School may have followed the "New Definitions" are included here. In every subject there has been gain since 1898:—

## NEW DEFINITIONS.

	1898.	1899.		1898.	1899.
Elementary Greek . . .	76	95	Elementary French . . .	36	233
Advanced Greek . . .	23	32	Advanced French . . .	87	78
Elementary Latin . . .	78	166	History . . . . .	21	112
Advanced Latin . . .	40	50	Geometry . . . . .	11	51
Elementary German . . .	40	55	Log. and Trig. . . . .		46
Advanced German . . .	32	34	Chemistry . . . . .		26

On May 16, 1899, the new requirements for admission, with one or two changes suggested by the Board of Overseers, were adopted in the Faculty by a vote of fifty-two to twenty. Though they were to affect no one in College at the time of their adoption, they became available for newcomers at once; and persons to whom Preliminary certificates have been granted under the old method may finish their examinations under the new. The old method will be continued, along with the new, through the examinations of 1901, but not thereafter. Whether the new method means a substantial increase of the requirements for admission, as is feared in some quarters, or a considerable decrease, as is feared in others, is yet to be determined: much depends on the discretion of the committee in charge of the examinations.

The members of the Administrative Board of Harvard College for 1898-99 were: The Dean of the College; Professors Greenough, Bartlett, de Sumichrast, Parker, Channing, Schilling, Grandgent, Sabine, and Johnson; Doctors Coolidge and Gulick; Messrs. Nichols, Gardiner, Hurlbut, and Ward; and the Recorder, Mr. Cram. The Recorder, though not a member of the Faculty of Arts and Sciences, was added to the Board at its own request; meeting scores of students every day, he cannot fail to be a useful member of a body whose efficiency depends in great measure on its knowledge of the undergraduates. Knowledge of the undergraduates may account also for the large place occupied in the Board, year after year, by the Department of English, whose relation to students, through the constant criticism of written exercises, becomes singularly intimate.

In the course of the year, the Board closed the probation of one Sophomore and four Freshmen, and suspended two Sophomores, one for cheating and one for disturbing a public entertainment; the Faculty dismissed one Senior for refusal to give his name to a College officer as well as for drunkenness and disorder. Three Juniors, four Sophomores, and nine Freshmen withdrew under pres-

sure either before or at the end of the year; and one Sophomore and one Freshman withdrew before the pressure was applied.

Much discussion was created by a vote of the Board whereby four officers of the Institute of 1770 were put on probation for a disturbance at a "punch" in the rooms of the society. In spite of the fact that their responsibility was official and not personal, in spite of the difficulty which they or other undergraduates would have met in controlling graduate guests, it was necessary to hold them, as principal officers of the society, accountable for the decent conduct of its social meetings. In the Institute, and in most College societies, the fixing of responsibility is made difficult by the transiency of the immediate members: before one set of officers has learned its duties, it must give way to another. On the other hand, disturbances are few.

To see that every absence from the class-room is promptly recorded at the College office and noted in the appropriate book, and that every negligent student is called to account, would require the greater part of one man's time; yet this is only one of the many and varied burdens imposed on the Recorder. Finding that the unreasonable demands on the Recorder's strength had impaired the efficiency of the Office, the President and Fellows, at the request of the Administrative Board appointed an Assistant Recorder, who entered on his work in the latter part of the academic year.

As usual, the Board found an obstacle to discipline in the irresponsibility of undergraduates with regard to the limits of holidays and recesses. If none but students of poor standing transgressed, the situation would be simple; its complexity lies in the failure of excellent scholars and their parents to recognize certain plain truths: first, that a College student has more days of legitimate vacation than anybody else in the active part of the world; and next, that a good citizen will submit to personal inconveniences for the sake of the community. Even instructors are known to encourage in the better undergraduates a claim to complete liberty, forgetting that a grown man's liberty is the liberty of binding himself to duty.

At the beginning of the academic year, the Faculty on the recommendation of the Board, voted, —

"That every student in Harvard College who, in consequence of being in the service of the United States Government, was absent from Cambridge at the time of the Final Examinations and therefore unable to take those examinations, be credited with a year's work, ungraded.

"That when an instructor feels able to return a provisional grade for such students, he shall return such grade in brackets."

These votes extend to the three lower classes the principle applied in June, 1898, to Seniors. The amount of work with which each soldier should be credited was fixed by the Dean of the College.

In June the Faculty voted, —

“ That the Administrative Board of Harvard College may require ‘dropped’ Freshmen to make up admission conditions before returning to College.”

This vote, though permissive only, strengthens the hands of the Board and the good resolutions of the dropped Freshmen.

In my last report (p. 114) I noted a long step of the Faculty toward the abolition of prescribed English. A still longer step was taken in the spring of 1899 : —

“ *Voted*, That English *A* and English *B* be united to form a single full course prescribed for Freshmen.”

“ *Voted*, That English *B* and English *C* be withdrawn.

“ That all students who, in the academic year 1898–99, have passed English *A* with a grade lower than *B* be required, in the academic year 1899–1900, to take a half-course in English Composition.

“ That students who, in the academic year 1898–99, have failed to pass the prescribed English of the Sophomore or the Junior Year, be required to make up this deficiency.”

“ *Voted*, That after the academic year 1899–1900, students who receive grade *D* in English *A* be required to take in the ensuing year a half-course in English Composition in addition to their regular elective work.”

“ *Voted*, That students who pass an examination in Rhetoric, Composition, and Literature (Catalogue 1898–99, page 283) with a grade of *A* or *B* be exempt from the study of prescribed English (English *A*). Students who pass this examination with a grade lower than *B* shall be exempt from prescribed English, but shall be required to take before the end of the Sophomore Year a half-course in English Composition in addition to their regular elective work.”

The abolition of Junior Prescribed English (English *C*) reduces the requirements for the bachelor's degree from eighteen courses to seventeen and a half ; the abolition of Sophomore Prescribed English (English *B*) for students of respectable rank in Freshman Prescribed English (English *A*) reduces the requirement for such students to seventeen courses ; and the encouragement to the anticipation of Freshman Prescribed English by capable students points to the ultimate reduction of the requirement to sixteen courses. These and other indications show that, for better or for worse, the three-year



degree is close upon us. With a three-year degree, a requirement of sixteen courses, or even of fifteen, is preferable to a requirement of eighteen. One evil in our present confused and transitional position is the restless desire of undergraduates to take, each year, the largest permissible number of courses, or a number larger still. When this desire is educational, when it means that the student sees in the elective pamphlet countless opportunities which he cannot cheerfully forego, it is, in spite of drawbacks, encouraging; but when, as is often the case, it is a mere transfer to educational matters of the principle of crude "hustling"; when it means that studies are to be counted off like tallies in a ball-game; when it lowers in the student's mind the standard of an elective course and forces the instructor, because many of his students are carrying six courses each, to reduce the demands of his own course, it is injurious alike to scholarship and to character. Ten hours a week including recitations or lectures, is not an unreasonable demand on the average student for a single elective course; but it is more than an instructor can exact of a class one half whose members are carrying six courses each. The fact that in some courses which should call for wide and deliberate reading there are royal coaching roads through syllabuses and "seminars" increases the evil. Many students, it is true, get high marks in large quantities of work: but there is a difference between a bare *A* and an *A* with the bloom on it; and the testimony of instructors, not to mention *a priori* considerations, indicates that most of these students would get more education from five courses a year than from six. Moreover, as everybody knows, the legitimate and wholesome delights of College life are not all concerned with courses of study,—and all take time. The undergraduate of good but not extraordinary capacity should, with strenuous work, and without degradation of his standard, succeed in his studies, and should have time, beside, for a fair share of those countless civilizing and strengthening experiences which make a good college an incomparable school of manners and of character.

Here I note that the three marshals of the class of 1899 took their degrees with distinction, one *magna cum laude* and two *cum laude*; that one, besides graduating *cum laude*, did in his fourth year such work as will probably entitle him at the end of this year to the degree of A.M.; and that another had for three years done much work as a private tutor. All were members of the University football team; one was its captain and a member also of the University base-ball team; one was President of his class; and each had as wide connections, social and athletic, as any reasonable youth could ask.

Whatever bearing these facts may have on the share of a student's time that successful study demands, they are a cheerful illustration of a truth that is often overlooked. Few marshals, I suspect, take high rank as scholars; the marshals of the class of 1899 were exceptional men: but all marshals, and nearly all other men whom in the long run the students honor lead active lives. The social supremacy of the loafer, if it ever existed, is a thing of the past; and the question about a candidate for high office (unless the office demands some peculiar gift of nature like the ivy orator's) is: "What has he done for the class?" The answer is and should be the answer of a young man rather than an old one; and as such it may overrate athletics or College journalism: but the question is a healthy one; for it shows that the men who are to represent a College class must have energy and self-sacrifice.

Now that most of our students must live outside of the Yard, the College dormitories have lost in part the hold they once had on the undergraduate's affection. Thus there has come about a growing competition between College buildings and luxurious private dormitories, a competition which even our new bath-rooms, a belated tribute to modern civilization, have failed to check. Two buildings outside of the Yard, Conant Hall and Holyoke House, are not nearly full; and the old Quadrangle, though its rooms are filled, has suffered from the withdrawal of much that used to belong to it when it was the acknowledged centre of undergraduate life. The richer and more fashionable students flock to an inferior part of the city, in and about Mount Auburn Street. This region, because cheap and accessible, has become a nest of club houses, which the new private dormitories are conveniently near. The steadily increasing love of rowing and the removal of athletic sports across the river have added their influence to that of the clubs; the erection of one fashionable dormitory has led to the erection of another; and the more healthful and attractive parts of the city are now looked upon as queer places for a student of social eminence to live in. All this, though it has come to pass naturally, causes regret to those who remember when a room in Holworthy was the goal of an undergraduate's ambition and the Yard was all in all.

Forty-two students, against twenty-three in 1896-97 and thirty-five in 1897-98, won a position in the First Group of holders of scholarships: —

CLASS.	NAME.	SCHOLARSHIP.	HOME.	SCHOOL.
'99	Edward Franklin Alexander	Price Greenleaf . . . . .	Cincinnati, O. . . . .	Woodward High School, Cincinnati, O.
'00	William Gallford Bale	" . . . . .	Asbury Park, N. J. . . . .	Phillips Academy, Andover.
'99	Charles Winthrop Blood	John Harvard . . . . .	Auburndale . . . . .	Newton High School.
'01	William Starling Burgess	" . . . . .	Brookline . . . . .	Milton Academy.
'00	William Bayard Cutting	" . . . . .	Oakdale, L. I., N. Y. . . . .	Groton School.
'01	William Stearns Davis	" . . . . .	Pittsfield . . . . .	Worcester Academy.
'00	Durant Ford Drake	" . . . . .	Boston . . . . .	Boston Latin School.
'00	Edward Addison Dunlap	Price Greenleaf . . . . .	Greenville, W. Va. . . . .	Cambridge Latin School.
'99	Alfred Lawrence Fish	Ruliff Sterling Choute . . . . .	Sandwich . . . . .	Self-prepared.
'00	Henry Heywood Fox	John Harvard . . . . .	Cambridge . . . . .	Cambridge Latin School.
'01	Sanford Henry Eisner Freund	Price Greenleaf . . . . .	New York, N. Y. . . . .	Phillips Academy, Andover.
'99	John Whipple Frothingham	John Harvard . . . . .	Brooklyn, N. Y. . . . .	Brooklyn Polytechnic Institute.
'99	Archibald Victor Galbraith	Bowditch . . . . .	Springfield . . . . .	Springfield High School.
'01	Ernest Amlin Gray	Price Greenleaf . . . . .	Woonsocket, R. I. . . . .	Woonsocket, R. I., High School.
'01	Lewis Whiton Hall	John Harvard . . . . .	Marshfield . . . . .	Adams Academy, Quincy.
'01	Walter Stern Heilborn	" . . . . .	Boston . . . . .	Boston English High School.
'00	Charles Brooks Hersey	Price Greenleaf . . . . .	Chelsea . . . . .	Chelsea High School.
'01	George Miller Hosmer	Bartlett . . . . .	Somerville . . . . .	Somerville Latin High School.
'99	Silas Isadore Hymen	John Harvard . . . . .	New Orleans, La. . . . .	Tulane University, New Orleans, La.
'99	Eldred Edward Ingerich	" . . . . .	Philadelphia, Pa. . . . .	Lawrenceville School, N. J.
'99	John Alexander Hull Keith	Price Greenleaf . . . . .	Walshville, Ill. . . . .	Illinois State Normal University.
'01	Harry Bevier Kirtland	John Harvard . . . . .	Plymouth, O. . . . .	Hale School, Boston.
'00	Clarence Hinkleley Knowlton	Bowditch . . . . .	Farmington, Me. . . . .	Farmington, Me., State Normal School.
'01	John LaFarge	John Harvard . . . . .	Newport, R. I. . . . .	W. Lay (Private Tutor).

CLASS.	NAME.	SCHOLARSHIP.	HOME.	SCHOOL.
'00	Walter Davis Lambert . . . . .	Price Greenleaf . . . . .	W. New Brighton, N. Y.	Friends' Seminary, N. Y.
'00	William Morrow . . . . .	" . . . . .	Philadelphia, Pa. . . . .	F. B. Brandt (Private Tutor).
'99	William Donaldson Murray . . . . .	John Harvard . . . . .	Newport, R. I. . . . .	Rogers High School, Newport, R. I.
'99	Langdon Pearse . . . . .	" . . . . .	Roxbury . . . . .	Roxbury Latin School.
'01	Torsten Peterson . . . . .	Price Greenleaf . . . . .	Lynn . . . . .	Lynn Classical High School.
'01	Hobart Rawson . . . . .	John Harvard . . . . .	Cincinnati, O. . . . .	Walnut Hills High Sch., Cincinnati, O.
'99	George McClure Sargent . . . . .	" . . . . .	Boston . . . . .	J. P. Hopkinson, Private School, Boston.
'01	Howard Gustav Schleiter . . . . .	Bowditch . . . . .	Pittsburgh, Pa. . . . .	Pittsburg, Pa., Central High School.
'00	Henry Latimer Seaver . . . . .	" . . . . .	Dorchester . . . . .	Boston Latin School.
'01	William Earle Stilwell . . . . .	" . . . . .	Fayetteville, N. Y. . . . .	Phillips Academy, Andover.
'99	George Russell Stobbs . . . . .	Class of 1856 . . . . .	Webster . . . . .	Phillips Academy, Exeter.
'01	Michael Augustine Sullivan . . . . .	Morey . . . . .	Lawrence . . . . .	Phillips Academy, Andover.
'99	Edwin Earle Wakefield . . . . .	Class of 1856 . . . . .	Newtonville . . . . .	Newton High School.
'01	Samuel Frye Walcott . . . . .	Walcott . . . . .	Salem . . . . .	Newton High School.
'99	Frank Owen White . . . . .	John Harvard . . . . .	Boston . . . . .	Salem Latin School.
'99	Edwin Bidwell Wilson . . . . .	Richard Augustine Gambrell, . . . . .	Cambridge . . . . .	E. H. Wilson, Private Sch., Cambridge.
'99	Alvin Walter Wise . . . . .	John Harvard . . . . .	Chicago, Ill. . . . .	Cambridge Latin School.
'00	Henry Aaron Yeomans . . . . .	" . . . . .	Spokane, Wash. . . . .	Spokane (Wash.) High School.



Of the forty-two, sixteen belonged to the class of 1899, eleven to the class of 1900, and fifteen to the class of 1901; ten had been in the First Group of 1897-98, and two in the First Group of 1896-97 but not in that of 1897-98. Of the forty-two, Massachusetts contributes twenty-one; New York, six; Pennsylvania, three; Ohio, three; Rhode Island, two; Illinois, two; Maine, New Jersey, West Virginia, Louisiana, and Washington, one each. The preparatory sources represented are thirty-four: Phillips Academy, Andover, appears four times in the list; the Boston Latin School, three times; and the Newton High School, twice.

In February, 1899, to further the public honoring of our good scholars, the Faculty voted to hold early in the academic year a meeting for the announcement of scholarships, the presentation of "Deturs" and in general the publication of academic distinctions in Harvard College. To this meeting all students in whose honor it is called will be invited. In a less formal and more agreeable manner the holders of scholarships in the First Group have been entertained each year by some University officer living in Boston; and older men whom they would naturally wish to see have been asked to meet them.

In 1898-99, the principle of the John Harvard Scholarships was extended by vote of the Faculty to the Second Group of holders of scholarships; and the scholarships "without stipend" in the Second Group become known as Harvard College Scholarships. A table shows the numerical relation between the scholarships with stipend and the scholarships without stipend in the first two groups:—

	With Stipend.	Without Stipend.
Group I . . . . .	22	20
Group II . . . . .	67	71
	<u>89</u>	<u>91</u>

Since two Harvard College Scholars were applicants for scholarships in money and lost such scholarships because carelessly late in applying for them, the number of *bona fide* Harvard College Scholars is reduced to sixty-nine. These two cannot be added to the number of scholars with stipend; for in any one year the number of scholarships in money is constant; and, had they applied in time, they would simply have crowded out two other men—probably with no further loss to the number of Harvard College Scholars. Putting these two men where they naturally belong, we have a surprising result:—

	With Stipend.	Without Stipend.
Group I . . . . .	22	20
Group II . . . . .	67	69
	<u>89</u>	<u>89</u>

In other words, of the highest one hundred and seventy-eight scholars in Harvard College the number of those who earned scholarships in money and the number of those who did not apply for such scholarships appear to be precisely the same.\* The number of students considered in these tables affords a fair basis for rough generalization; and the tables give an effective answer to persons who maintain that nearly all the scholarly work of undergraduates is work for money.

If scholarships in money for needy students are ever desirable, those persons who believe that Harvard College has too many now and deplore the folly of men and women who persist in adding to the number by bequest, may well consider the situation in detail. In 1873-74, the College contained seven hundred and six students and had the use of ninety-two scholarships; in 1898-99, it contained eighteen hundred and fifty-one students and had the use of one hundred and twenty-five scholarships. In 1873 there was no Graduate School; in 1898, twenty-four scholarships (yielding annually six thousand eight hundred and fifty dollars) had, though given to the College before the Graduate School existed, been transferred to the Graduate School; and four scholarships (yielding annually nine hundred and fifty dollars) had, though intended for graduates and undergraduates alike, come to be regarded as for graduates only.†

To offset these losses the College has, besides new scholarships, the Price Greenleaf Fund, yielding annually about fourteen thousand dollars. The income of this fund is used mainly in attracting students to Harvard College, whether from other colleges or from schools. About ten thousand dollars is promised to persons not in the University, on condition that, during the next academic year, they shall have good and regular standing in a class at Harvard College. About two thousand more is awarded to other first-year students, whether Freshmen or not, in the middle of the year; and the remainder is used in piecing out the smaller scholarships and in giving moderate aid to a few students of at least a year's standing who have not won scholarships. The Price Greenleaf Fund, though it relieves want, creates want also, since it and the hope of it increase the number of our needy students. In this respect it is more dangerous than scholarships are: first, because it is more deliberately used in drawing men to Cambridge, and next because it is rarely given to men who can see their way without it.

\* It should be said that one John Harvard Scholar on leave of absence would probably have received a scholarship "with stipend" had he been in residence.

† One of these is now held by an undergraduate at the giver's request.

Except Price Greenleaf money and now and then a small award from the very small income of the Dr. Andrew P. Peabody and Frank Bolles Memorial Funds, little College aid is given to Freshmen. The Scholarship of the Class of 1867 goes annually to a Freshman, preferably to a descendant of the class; the two Crowninshield Scholarships, for Freshmen who may keep them, subject to removal by the Corporation, throughout their College course, revert to Freshmen every three or four years; and other scholarships occasionally are given to Freshmen on grounds of special claim: but the income of the larger Beneficiary Fund (not including the Munroe Fund for students from Concord, Massachusetts), the income of the Loan Fund, and in general all scholarships but the three I have named are reserved for students of at least one year's standing in Harvard College.

Deducting the three scholarships that belong to Freshmen, the two scholarships actually available for graduates and undergraduates alike, the scholarship regularly awarded to a graduate but now held by an undergraduate at the giver's request, the two Eveleth Scholarships which must be awarded to Special Students, and one Walcott Scholarship not now available, we have one hundred and sixteen scholarships for the three higher classes. Several of these might be assigned to Special Students — notably the Henry B. Humphrey, the Class of 1828, and the two Warren H. Cudworths; but as only one of them is likely to be so assigned, we may fairly count on a hundred and fifteen scholarships for three classes, or about thirty-eight to a class. For a class of four hundred, thirty-eight is not an excessive number; but not nearly thirty-eight to a class are awarded in open competition among the men who need aid. The fifteen Matthews Scholarships, for example, of three hundred dollars each, are awarded to persons who intend to be clergymen of the Protestant Episcopal Church and to sons of such clergymen. The including of sons whatever their intentions is a comparatively recent addition to the scope of these scholarships and a good one. Indeed the second basis of award is sounder than the first; for intentions change, whereas ancestry is inevitable. Clergymen, moreover, set a high value on the education of their children and can rarely pay for it without hardship.

Of the fifteen Matthews Scholarships, only one was awarded last year to a student who had earned any scholarship by the excellence of his College work. Thirty other scholarships may be assigned on grounds of special claim; and thus, without reckoning several scholarships for which a special claim, though possible, is less

likely to interfere with free competition, we have forty-five scholarships any or all of which may go to students whose standing is mediocre. As a matter of fact, only twenty-eight were awarded last year on grounds of special claim; but even thus only eighty-eight were left for the free competition of three classes — or less than thirty to a class.

In regard to special claim, there is an interesting problem. Suppose a scholarship designed for students from Worcester and applied for by two good Worcester men of whom one would and the other would not earn a scholarship by his rank. Helping the first fulfils the letter of the law and increases by one the number of scholarships earned through competition, but withholds from Worcester the peculiar advantage of a Worcester scholarship: helping the second secures this advantage; and helping the second is the policy of the committee on scholarships.

Students and their parents are inclined to regard scholarships as a right; it is not an uncommon feeling in mothers that the failure of their boys to get such aid means official corruption in Harvard College: yet when nearly three hundred students apply for a hundred and fifteen scholarships (many of which are open to certain students only) the notion that every undergraduate who is poor and good and justly used will get a scholarship should disappear.

The number of persons aided by College money is much larger than the number of scholarships: including the beneficiaries of the Price Greenleaf Fund, the Loan Fund, the Dr. Andrew P. Peabody Memorial Fund, the Frank Bolles Memorial Fund, and the Beneficiary Fund, it amounted in 1898-99 to two hundred and ninety-seven. One or two scholarships were divided, — notably the Henry B. Humphrey, which as nobody from Knox County, Maine, applied for it, became useful to five undergraduates from other parts of Maine. I have counted all loans or gifts, however small, which have come from College money through the College office; but not loans or gifts from individuals, though passing through my hands, and not loans from returned scholarship and beneficiary money in the hands of the President.

In general, a scholarship is the most acceptable College aid because it is the most liberal and because, if won in competition, it is a tangible reward of intellectual achievement. When, as in the present academic year, excellent Seniors who attained Grade *A* in two-fifths of their work and Grade *B* in the rest are crowded out by men of higher rank, it is clear that earning a scholarship implies mental superiority. This is as it should be; but whoever knows the



quality of some students that have to be left out must wish an increase in the number of scholarships. When scholarships hire men to come and starve, or when they pauperize inferior persons (as they are said to do in some schools of theology), they are a curse; but as yet there are no such dangers in the unrestricted scholarships of Harvard College.

L. B. R. BRIGGS, *Dean*.

## THE LAWRENCE SCIENTIFIC SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—During the academic year 1898–99, the conditions of the Lawrence Scientific School, so far as they need mention in this report, were as follows:—

In the reports of previous years frequent and insistent reference has been made to the need of new laboratories and lecture-rooms for the departments of Civil, Mechanical and Electrical Engineering, for Mining and Metallurgy, and for Architecture, due to the steady increase in the number of students in this School. It is most satisfactory to note that these several needs are likely soon to be met by new buildings or by the better equipment of those now in use—provisions which are likely to suffice for the probable gain in numbers for at least a decade to come. The first of these welcome enlargements to take definite shape is that which relates to the work in Mining and Metallurgy. The nature of the gifts which have provided this good help are interesting. They are as follows:—

In 1889 the late Henry Astor Carey gave for the use of athletic sports, a building on Holmes Field, which was then the centre of that part of the College life,—a substantial edifice which afforded large rooms for a rowing tank, ball cage, fives-court, and so forth. When these sports were transferred to Soldier's Field, and the Carey gift ceased to serve the purposes of the donor, the College replaced it by a building on that Field—one better adapted, indeed, to some of the purposes Henry Astor Carey had in mind. This arrangement enabled the Corporation to assign to the Scientific School the commodious building abandoned on Holmes Field. Money to fit up the chemical laboratory, lecture, exhibition, and library rooms, which could not otherwise have been provided, was opportunely received from an unrestricted bequest of the late Edith Rotch, a granddaughter of the founder of the School. There remained, however, the need of a laboratory to illustrate the practice of mining and the treatment of ores, for which space had been reserved in the large Eastern hall originally used as a ball cage. For more than a year the question as to how it would be possible to provide for this establishment was a matter of anxiety to the authorities of the School. A generous gift, made in the memory of the late Hon. John Simpkins,

has enabled the Corporation to complete this provision for the department.

A graduate of the College, Mr. Simpkins was greatly interested in Geology. From 1894 to 1896 he was chairman of the Committee of the Overseers appointed to visit that division. Having been an athlete, he had pleasant memories of Holmes Field. Shortly before his death he stated that he hoped to have some share in fitting the Rotch building for its new uses. By the generosity of his brothers and sisters this purpose has been made good. The work of installing the necessary apparatus is now under way. By the beginning of the next academic year a sufficient number of appliances will be ready for use to teach all the important principles of treating ores. That this work is to be done in a laboratory bearing the name of John Simpkins is a gratification to all members of the University who knew the man. It is most fit that his manly life should thus be commemorated in a place where generations of youths are to make themselves ready for vigorous and skilful labor.

It may be well to note that in the project for the laboratories in Mining and Metallurgy it is not proposed to do more than illustrate the principles involved in the various methods of treating ores. Thus, while the establishment is to include the usual tools, stamps, vats, and so forth, so that samples may be passed through the series of operations and the theory of these processes thereby made clear, the aim will be to limit the work strictly to this purpose of illustration and experiment. Those who have charge of instruction in this department believe that little relating to the craft of this and other technical arts, can or should be taught in a school: the technique is profitably learned in those places only where the work is conducted with a view to profit. Therefore the students in this department are required to spend the larger part of one of their long vacations in mines and metallurgical works, where they may observe the economic application of methods with which they have become familiar in the laboratory.

In 1898-99 the rate of increase in the number of students showed a slight diminution, the gain in numbers of that year being less than two per cent. — considerably less than that of the preceding five years. At first it seemed possible that the change might have been due to the announcement of increased requirements. It now seems probable that the falling off was due altogether to the disturbance of the Spanish War; not directly to the number of youths entering the army, but through the disturbance of people's minds which the war entailed. This is indicated by the fact that the registration for

1899-1900 shows a larger gain than any other year save one, and a larger number admitted to regular standing than ever before. Moreover, the proportion of Special or non-matriculated students has diminished. Until 1892 this group exceeded in numbers those admitted to the regular classes. In the registration of this year it constitutes less than one sixth of the whole. An inspection of the lists shows that about thirty of the eighty Special students are thus classed for the reason that they are mature persons who are seeking some particular opportunity of study; so that the proportion of these who are excluded from the classes because of defects of preparation is about one tenth of those admitted to registration.

The following tables show the distribution of the registrations, and other statistics of the School for the present year and preceding years:—

## REGISTRATION BY CLASSES.

Class.	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899 to Nov. 1
Fourth-Year . . . .	1	6	3	7	11	20	29	30	30	37	51	62
Third-Year . . . .	1	1	7	9	9	30	39	27	41	44	58	69
Second-Year . . . .	0	5	12	13	32	47	45	73	92	106	93	107
First-Year . . . .	4	15	13	19	48	45	91	106	129	132	149	177
Specials . . . . .	29	38	53	70	81	138	104	104	76	91	64	80
Total . . . . .	35	65	88	118	181	280	308	340	368	410	415	495

## REGISTRATION FOR ADMISSION EXAMINATIONS.

	Preliminary.	Final.	Total.
1893 . . . . .	8	63	71
1894 . . . . .	34	97	131
1895 . . . . .	51	171	222
1896 . . . . .	37	221	258
1897 . . . . .	59	184	243
1898 . . . . .	73	184	257
1899 . . . . .	89	246	335

## SPECIAL STUDENTS.

Number of years in attendance.	
First . . . . .	43
Second . . . . .	22
Third . . . . .	10
Fourth . . . . .	4
Fifth . . . . .	1
Total . . . . .	80



The gain in the number of students registered this year is particularly important for the reason that it indicates the probable success of the system by which the entrance examinations are to be increased as regards the number and gravity of subjects required, until in 1903 the requirements will be equal to those of the College. It was to be expected that for some years after these more rigorous tests began to be applied, the attendance, while gaining in quality, would for a time diminish in numbers. It is perhaps too soon to conclude that this diminution will not take place; but the experience of this year affords reason for hope that it may not occur. The considerable increase this year in the number of those who were granted certificates for preliminary examinations appears to indicate a further gain in the registration in the next academic year.

N. S. SHALER, *Dean*.

## THE GRADUATE SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As Dean of the Graduate School, I have the honor to present my report on the School for the academic year 1898–99.

The members of the Administrative Board for the year were Professors Jackson, White, Byerly, B. O. Peirce, von Jagemann, Wolff, Hart, Kittredge, Münsterberg, and the Dean of the School. The new members were Professors White, Byerly, and Wolff, who replaced Professors Norton, Farlow, and Ashley, the latter gentlemen either having retired from active service (Professor Norton) or being absent from the University on leave (Professors Farlow and Ashley). The recurrence of the “Sabbatical year” creates vacancies enough each year to secure a suitable number of new members on the Board. At the same time it not infrequently robs the Board of members whose term of service has been exceptionally brief. Professor Kittredge has been Secretary of the Board since 1896.

The Board held twelve meetings, on an average twice a month, with the exception of the winter months, in which one meeting was held each month. A few remarks about the business of the Board are made upon a later page. No cases of discipline have come before the Board within the last four years.

Much information about the membership and character of the School may be given in tabular form. As these Tables to a large extent explain themselves, my remarks upon them will be brief.

- I. Number and classification of students (resident and non-resident; students doing full or partial work; fields of study; length of connection with the School; holders of Bachelor's and of the higher degrees): 1896–97, 1897–98, 1898–99.
- II. Colleges and Universities represented, with Degrees held: 1898–99.
- III. Colleges and Universities represented by four or more graduates in the School: 1895–96, 1896–97, 1897–98, 1898–99, 1899–1900.
- IV. Birthplaces of Graduate Students: 1896–97, 1897–98, 1898–99.
- V. Recommendations for Degrees in 1897, 1898, 1899.
- VI. Departments in which the Higher Degrees were conferred in 1899.
- VII. Age of Masters of Arts and of Science, Doctors of Philosophy and of Science: 1899.
- VIII. Age of Doctors of Philosophy created in 1897, 1898, 1899.
- IX. Fellowships and Scholarships: numbers of applicants and appointees in 1897–98, 1898–99, 1899–1900.
- X. The degree of Bachelor of Arts conferred on Graduate Students: 1887–99.

## STUDENTS.

The number of students registered in the School in 1898-99 was three hundred and thirty-six. This does not include a few persons who were in the School for a period of less than six weeks at the opening of the year.

TABLE I. — NUMBER AND CLASSIFICATION OF STUDENTS.

	1896-97.	1897-98.	1898-99.
Resident Students doing full work in the School for the whole academic year . . . . .	194	171	218
Resident Students not doing full work or not working for the whole year as resident students . . .	96	107	103
	— 290	— 278	— 321
Non-Resident Students holding fellowships . . . .	14	15	12
Non-Resident Students not holding fellowships . .	2	0	3
	— 16	— 15	— 15
Students whose studies chiefly lay in *			
I. Semitic Languages and History . . . . .	4	2	3
II. Ancient Languages (Classics and Sanskrit) . .	37	39	47
III. Modern Languages (including Comparative Literature) . . . . .	59	71	80
IV. History and Political Science . . . . .	58	43	54
V. Philosophy (including Education) . . . . .	44	45	52
VI. Fine Arts (including Architecture) . . . . .	2	1	4
VII. Music . . . . .	0	1	1
VIII. Mathematics . . . . .	} 24	{ 14	19
IX. Engineering . . . . .			
X. Physics . . . . .	12	16	15
XI. Chemistry . . . . .	17	17	19
XII. Biology . . . . .	} 31	{ 22	25
XIII. Geology . . . . .			
XIV. American Archaeology and Ethnology . . .	1	4	1
Unclassed Students . . . . .	7	5	7
	— 306	— 293	— 336
First-year Students . . . . .	156	149	186
Second-year Students . . . . .	71	73	72
Third-year Students . . . . .	49	43	44
Fourth-year Students . . . . .	21	21	20
Students in a fifth or later year . . . . .	9	7	14
	— 306	— 293	— 336
A.B.'s and S.B.'s of Harvard University and of no other institution . . . . .	112	90	118
A.B.'s and S.B.'s (and holders of similar degrees) of other institutions and also of Harvard University . . . . .	36	41	34
Students not holding the Harvard degree of A.B. or S.B. . . . .	158	162	184
	— 306	— 293	— 336
Students holding the Harvard degree of A.M., S.M., Ph.D., or S.D. . . . .	95	96	102
Students holding the Harvard degree of A.B. or S.B., but not of A.M., S.M., Ph.D., or S.D. . .	89	80	97
Students holding no Harvard degree in Arts, Philosophy, or Science . . . . .	122	117	137
	— 306	— 293	— 336

\* For detailed statistics as to the number of Graduate Students enrolled in the various courses of instruction offered by the Faculty of Arts and Sciences, see the Report of the Dean, pp. 57-88.

Admission to the Graduate School is ordinarily granted to holders of the Bachelor's degree of good colleges, and to a few other persons of maturity who give evidence of an equivalent education. Recent graduates of colleges where the course of study would not secure admission at least to the Senior class of Harvard College, with or without conditions, and men who come from unknown institutions, are commonly not admitted to the Graduate School, but are expected to seek admission as Undergraduates, or as Special Students, in Harvard College. It is the policy of the Board to advise candidates for the degree of Bachelor of Arts, especially if they are recently graduated, to seek admission to the Senior class. The colleges and universities that were represented in the School in 1898-99 are given in Tables II and III.

The foregoing Table (Table I) exhibits the usual classification of the Students of the School, and is given for convenience of comparison for the three successive academic years 1896-97, 1897-98, 1898-99.

Of the Resident Students two hundred and eighty-one were in attendance throughout the whole year. Of this number two hundred and eighteen — including all holders of fellowships and scholarships — were engaged in what is defined as a complete year of work (four courses of advanced grade or their equivalent), or were doing a larger amount of work. Sixty-three of the number in residence throughout the year were doing partial work, which ranged from half a course to three and one-half courses. Several of this class were engaged in teaching or in other professional occupations in Cambridge or vicinity, and were devoting only part of their time to study in the Graduate School. Some of them had no intention of becoming candidates for the degree; others hoped to obtain one of the higher degrees at a subsequent time upon completing an approved programme of studies. Of the remaining forty Resident Students thirteen entered after November 1, 1898, and twenty-seven withdrew before the close of the year.

Attention should be directed to the increase in the number and proportion of students doing full work for the whole year. It is these men mainly that give the School its character and reputation.

The class of Non-Resident Students included all holders of travelling fellowships and other fellowships held by students away from Cambridge, and only three other persons, one of whom was registered for but half the year. The privilege of Non-Resident membership is carefully guarded. It is reserved for men who have already been in residence at the University for a suitable time. The work of Non-



Resident Students, whether holders of fellowships or not, is carried on under the constant supervision of the Departmental committees under which the students are working.

The second division of Table I indicates the several fields of learning and science in which the work of the students chiefly lay. Classification here is not always easy, since, in the case of many students, the work of each lies, in part at least, in more than one Department, a fact that cannot be noted in this Table. For example, no special note can here be made of the large number of students of Education and Teaching, since many of these men are classified in some other Department, their work in Education constituting but a fraction of the instruction received. Detailed information about the choice of studies of Graduate Students in the several Departments may be obtained by a reference to the statistics given in the Report of the Dean of the Faculty of Arts and Sciences. The steady and uniform attraction which several of the great departments of learning exercise upon advanced students is apparent from the Table. In 1898-99 the subjects, as arranged according to the number of students that pursued them, were —

Modern Languages,	Chemistry,
History and Political Science,	Physics,
Philosophy,	Fine Arts,
Classics and Sanskrit,	Semitics,
Natural History,	Music,
Mathematics,	American Archaeology and Ethnology.

It is an interesting fact that for the first eight subjects on this list the order in each successive year since 1894 has not varied in any particular from that of the year 1894-95. For several years, three-fourths of the members of the School have been students of the languages, and of the so-called moral sciences, as against one-fourth who have been students of the mathematical, physical, and natural sciences.

An inspection of the next division of Table I shows that the proportion of students remaining in the School for the second or third year has not increased. As in the past, about one-half the members of the School have been in the School but one year; about one-half of these obtained the degree of Master of Arts at the close of the year. About one-fifth have been in the School for two years only, while a little more than one-fifth have been in it for three or more years. The proportion of men, however, who proceed to the higher degrees is on the increase, though the increase is but slow.

TABLE II. — COLLEGES AND UNIVERSITIES, WITH DEGREES HELD.

	A.B.	S.B.	LITT.B.	Ph.B.	A.M.	S.M.	Ph.D.	S.T.B.	LL.B.	M.D.	No. De- grees.	No. Per- sons.
Acadia University, N. S.	3	..	..	..	2	..	..	..	..	..	5	3
Albany Law School, N. Y.	..	..	..	..	..	..	..	..	1	..	1	1
Allegheny College, Pa.*	1	..	..	..	..	..	..	..	..	..	2	1
Amherst College, Mass.	5	..	..	..	..	..	..	..	..	..	5	5
Bates College, Me.	1	..	..	..	1	..	..	..	..	..	2	1
Beloit College, Wis.	2	..	..	..	..	..	..	..	..	..	2	2
Boston College, Mass.	3	..	..	..	..	..	..	..	..	..	3	3
Boston University, Mass.	3	..	..	..	..	..	..	1	..	..	4	3
Bowdoin College, Me.	6	..	..	..	2	..	..	..	..	..	8	6
Brooklyn Polytechnic Institute, N. Y.	1	..	..	..	..	..	..	..	..	..	1	1
Brown University, R. I.*	7	..	..	1	4	..	..	..	..	..	13	8
Bucknell University, Pa.	1	..	..	..	1	..	1	..	..	..	3	1
California, University of	3	1	..	4	..	1	..	..	..	..	9	8
Chicago, University of, Ill.	..	..	..	1	1	..	..	..	..	..	2	2
Cincinnati, University of, O.	..	..	1	..	..	..	..	..	..	..	1	1
Colby University (College), Me.	3	..	..	..	1	..	..	..	..	..	4	3
Colgate University, N. Y.	2	..	..	..	1	..	..	..	..	..	3	2
Columbia University, N. Y.	..	..	..	..	..	..	..	..	1	..	1	1
Columbian University, D. C.	1	..	..	..	2	..	..	..	..	..	3	3
Cornell College, Ia.	1	..	..	1	..	..	..	..	..	..	2	2
Cornell University, N. Y.	..	2	..	1	..	..	..	..	..	..	3	3
Dalhousie University, N. S.	2	1	..	..	1	1	..	..	..	..	5	3
Dartmouth College, N. H.	1	..	1	..	..	..	..	..	..	..	2	2
Dickinson College, Pa.	1	..	..	..	1	..	..	..	..	..	2	1
Episcopal Theological School, Cambridge, Mass.	..	..	..	..	..	..	..	1	..	..	1	1

[illegible]

\* See note on page 137.

TABLE II. — CONTINUED.

	A.B.	S.B.	Litt.B.	Ph.B.	A.M.	S.M.	Ph.D.	S.T.B.	LL.B.	M.D.	No. De- grees.	No. Per- sons.
Missouri, University of the State of	1	..	..	..	..	1	..	..	..	..	2	1
Mt. Allison University, N. B.	1	..	..	..	..	..	..	..	..	..	1	1
National Normal University, O.	1	1	..	..	1	..	..	..	..	..	3	1
Nebraska, University of	1	..	..	..	..	..	..	..	..	..	1	1
Nevada, State University of	1	..	..	..	..	..	..	..	..	..	1	1
New Brunswick, University of	3	..	..	..	..	..	..	..	..	..	3	3
North Carolina, University of	1	..	..	..	..	..	..	..	..	..	1	1
Northwestern University, Ill.	2	..	..	2	1	1	..	..	..	..	6	6
Oberlin College, O.	3	..	..	..	1	..	..	..	..	..	4	3
Ohio Normal University	1	..	..	..	..	..	..	..	..	..	1	1
Ohio State University	..	1	..	2	..	..	..	..	..	..	3	3
Ohio Wesleyan University	1	1	..	..	..	..	..	..	..	..	2	2
Olivet College, Mich.	1	..	..	..	1	..	..	..	..	..	2	1
Pennsylvania, University of	..	1	..	..	..	..	..	..	..	..	1	1
Princeton University, N. J.	1	..	..	..	1	..	..	..	..	..	2	1
Queen's University, Ont.	2	..	..	..	2	..	..	..	1	..	5	3
Richmond College, Va.	1	..	..	..	..	..	..	..	..	..	1	1
Rochester, University of, N. Y.	2	..	..	..	1	..	..	..	..	..	3	2
South Carolina College	1	..	..	..	..	..	..	..	..	..	1	1
Strasburg, University of, Germany	..	..	..	..	..	..	1	..	..	..	1	1
Syracuse University, N. Y.	2	..	..	..	..	..	..	..	..	..	2	2
Texas, University of	..	1	..	..	1	..	..	..	..	..	2	1
Toronto, University of, Ont.	7	..	..	..	2	..	..	..	1	..	10	7
Trinity College, Conn.	1	..	..	..	..	..	..	..	..	..	1	1
Tufts College, Mass.	5	..	..	..	3	..	..	..	..	..	8	6



[illegible]

\* Besides the degrees enumerated above, the following were held by one or two persons, as indicated: B.A.ppl.Sci., McGill University, Que.; C.E., Allegheny College, Pa.; Heb.B. and Rabbi, Hebrew Union College, O.; Mech.Eng., University of Virginia; Pharm.Gr., Chicago College of Pharmacy, Ill.; S.D., Brown University, R.I.; S.D.B. (2), Missouri State Normal School, Kirksville, and Missouri State Normal School, Warrensburg.—The University of Virginia and Wesleyan University, Conn., were each represented by one Non-Graduate; Harvard, by eight (mostly Seniors) on leave of absence from Harvard College, who had completed wholly or almost wholly the requirements for the A.B. degree). There were, further, in the School one Graduate each of Crozer Theological Seminary, Pa.; Ephraates College, Turkey; Meadville Theological School, Pa.; Real-Gymnasium, Dortmund, Germany; and the Union Theological Seminary, N. Y.

The fourth division of Table I shows in general the extent to which the School draws its membership from graduates of Harvard and other institutions.<sup>1</sup> About sixty-six per cent. of the students of the School held a degree from Harvard University, and about half of these held only the Harvard degree of Bachelor of Arts.

Tables II, III, and IV supplement each other and exhibit in detail the extent to which different parts of the country and different higher institutions are represented in the Graduate School. In Table II are given the various colleges and universities, and the professional and technical schools, whose graduates were members of the School in 1898-99, together with the degrees these persons held and the number of different persons from each institution.

These Tables show that Harvard University continues to draw its Graduate Students from the whole country without distinction, from Canada, and, to a certain extent, from foreign countries. The large increase of students from Canada is noteworthy, the number being now nearly double what it was in 1897-98, and quadruple what it was in 1896-97.

The most common degree held by members of the School was that of Bachelor of Arts, — next that of Master of Arts. Of the three hundred and fifty-seven Bachelor degrees in the School, three hundred and six were Bachelor of Arts, and twenty-nine Bachelor of Science. There were six Masters of Science and eight Doctors of Philosophy in the School.

Among the facts that do not at once appear from our Tables is the very significant one that the 'migration' of Graduate Students — i. e., the resort to this University of men who have pursued graduate study elsewhere — is on the whole increasing from year to year. In 1898-99, of the new men in the School, 50 had been Graduate Students at another university, and there are 46 in 1899-1900, a larger number than in previous years; and the number of men holding degrees from two (or more) universities is 102 in 1899-1900, as against 98 in 1898-99.

<sup>1</sup> For detailed information upon this point Tables II and III should be consulted.

TABLE III. — COLLEGES AND UNIVERSITIES REPRESENTED BY FOUR OR MORE GRADUATES IN THE SCHOOL:  
1895-96, 1896-97, 1897-98, 1898-99, 1899-1900.

1895-96.	1896-97.	1897-98.	1898-99.	1899-1900.
Harvard, 178	Harvard, 174	Harvard, 178	Harvard, 198	Harvard, 183
Kansas, 8	Kansas, 8	Kansas, 7	Yale, 10	Michigan, 8
Wesleyan (Conn.), 8	Wesleyan (Conn.), 8	Brown, 7	Brown, 8	Amherst, 7
Amherst, 7	Amherst, 7	California, 6	California, 8	California, 7
Bowdoin, 7	California, 7	Dartmouth, 6	Leland Stanford Jr., 7	Oberlin, 7
California, 7	Oberlin, 7	Vermont, 6	Toronto, 7	Leland Stanford Jr., 6
Brown, 6	Dartmouth, 6	Amherst, 5	Bowdoin, 6	Brown, 5
Mass. Inst. Tech. 5	Indiana, 6	Northwestern, 5	Northwestern, 6	Haverford, 5
Pennsylvania, 5	Brown, 5	Oberlin, 5	Tufts, 6	Northwestern, 5
Western Reserve, 5	Tufts, 5	Princeton, 5	Amherst, 5	Pennsylvania, 5
Yale, 5	Bowdoin, 4	Toronto, 5	Haverford, 5	Toronto, 5
	Leland Stanford Jr., 4	Wesleyan (Conn.), 5	Indiana, 5	Tufts, 5
	Michigan, 4	Western Reserve, 5	Iowa, 5	Wesleyan (Conn.), 5
	Vermont, 4	Acadia, 4	Kansas, 5	Beloit, 4
	Western Reserve, 4	Indiana, 4	Michigan, 4	Boston Univ., 4
		Leland Stanford Jr., 4	Western Reserve, 4	Bowdoin, 4
		Mass. Inst. Tech. 4		Dalhousie, 4
		Ohio Wesleyan, 4		Kansas, 4
		Yale, 4		Nebraska, 4
				Rochester, 4
				Williams, 4
				Yale, 4
Total Membership, 299	306	293	336	[Nov. 29, 1899.] 326

Table III shows, among other things, that the number of colleges that send a considerable number of students to the Graduate School is increasing. Leaving Harvard graduates out of our enumeration, it appears from this Table that in 1895-96 there were ten colleges represented in the School by four or more graduates. In 1896-97 there were fourteen; in 1897-98, eighteen; in 1898-99, fifteen; in the current year (1899-1900) there are twenty-one.

The colleges or universities that have been steadiest in their supply of Graduate Students for the last five years, each sending four or more students every year, are California, Kansas, Amherst, and Brown. Next come Wesleyan (Conn.), Yale, Leland Stanford Jr., Bowdoin, Western Reserve, each of which has omitted only one year in the sequence of five years.

The constant relation between the Graduate School and many of the leading colleges of the country as exhibited in this Table might well receive recognition and win yet greater stability through the establishment, by friends both of Harvard and of the colleges, of scholarships and fellowships at this University for students from these colleges. Such foundations would not only attract to this University an increasing number of able men, but would tend to promote the feeling of coöperation and of sympathy which should exist between the higher institutions of learning. Similar foundations at Oxford and Cambridge have served a most useful purpose for many years.

TABLE IV. — BIRTHPLACES OF GRADUATE STUDENTS.

	1896-97.	1897-98.	1898-99.
Students born in the New England States . . . . .	141	121	143
Students born in other Northern States east of the Mississippi River . . . . .	86	89	106
Students born in Southern States east of the Mississippi River . . . . .	13	19	15
Students born in States west of the Mississippi River . .	25	26	30
Students born in the Dominion of Canada . . . . .	17	18	25
Students born in other foreign countries . . . . .	24	20	17
Total number of students . . . . .	306	293	336

This Table shows that only about forty-two per cent. of the students were of New England birth, and that in 1898-99, as compared with previous years, the proportion of students born in other northern States and in States west of the Mississippi River, and in Canada, had decidedly increased.



## DEGREES.

One hundred and fifty-three persons were recommended\* for the higher degrees at Commencement, 1899.

The details are found in the following Table (V), which gives, in the first and second parts, the number of students in the Graduate School recommended by the Faculty of Arts and Sciences for any degree, and the number of other students recommended for the degrees of Master of Arts and Doctor of Philosophy in the three years 1897, 1898, and 1899. In the third part of the Table, all persons recommended for the higher degrees (A.M., S.M., Ph.D., and S.D.) are classified with reference to their previous graduation as Bachelors of Arts or of Science.

TABLE V. — RECOMMENDATIONS FOR DEGREES IN 1897-99.

	1897.	1898.	1899.
Graduate students recommended for A.B. . . . .	14	18	8
Graduate students recommended for A.M. . . . .	94	91	97
Graduate students recommended for S.M. . . . .	0	5	6
Graduate students recommended for Ph.D. . . . .	25	25	21
Graduate students recommended for S.D. . . . .	1 134	0 139	1 133
College Seniors recommended for A.M. . . . .	0	0	2
College Seniors of a preceding year, recommended for A.M. on work done in senior year . . . . .	6	9	16
Professional students recommended for A.M. on special courses of study . . . . .	13	7	8
Professional students recommended for Ph.D. on special courses of study . . . . .	0	1	2
Professional students recommended for A.M. with a professional degree . . . . .	1† 20	0 17	0 28
Total of the above list . . . . .	154	156	161
Deduct Graduate students receiving A.B. . . . .	14	18	8
Total number recommended for A.M., S.M., Ph.D., and S.D. . . . .	140	138	153
Harvard Bachelors of Arts or Science, not pre- viously graduated elsewhere . . . . .	57	42	65
Harvard Bachelors of Arts or Science, previously graduated elsewhere . . . . .	24	21	20
Students not Harvard Bachelors of Arts or Science	59 140	75 138	68 153

\* The number of persons recommended each year, and that of the men who actually receive the degree, as published in the Annual Catalogue, do not always agree. In each year a few of the candidates recommended do not, for various reasons, receive the degree at once. Ordinarily the degree is in these cases conferred in a later year, "as of" the year in which the recommendation was made.

† The practice of giving the degree of A.M. with a professional degree was discontinued in 1896. This student had been a member of the Medical School before 1896, and received his degree "as of 1895."

Two especially noteworthy facts are exhibited by this Table. One of these is the steady increase in the number of students who receive the degree of A.M. for work done as College Seniors in excess of the requirement for the Bachelor's degree. Such men have, in reality, completed the course of study for the Bachelor's degree in three years, but mainly for sentimental reasons they prefer to receive their Bachelor's degree at the end of the fourth year, and to postpone receiving the Master's degree to the end of the fifth year,—the fifth year, however, being one in which no additional work is done for the degree. The other interesting fact is that the degree of Doctor of Philosophy is now taken by men registered in professional schools for work done under the supervision of the Faculty of their school, although under the direction of Committees of Honors and Higher Degrees of the Faculty of Arts and Sciences. In 1899 these candidates were students in the Divinity School, and they received the degree in Theology, being under the direction of the Committee in Philosophy. The Law School has as yet made no provision of this sort; in the Medical School there are a few candidates who in a future year may come up for the degree of Ph.D. in some branch of medical research; their work is carried on under the general direction of the Committee in Biology.

The next Table (VI) indicates the departments or fields of study in which chiefly lay the work of the candidates for the degrees of Master of Arts, Master of Science, Doctor of Philosophy, and Doctor of Science.

TABLE VI.—DIVISIONS AND DEPARTMENTS IN WHICH RECOMMENDATIONS FOR THE HIGHER DEGREES WERE MADE IN 1899.

DIVISION.	DEPARTMENT.	DEGREES.			
		A.M.	S.M.	PH.D.	S.D.
I. Semitic Languages and History . . . . .				1	
II. Ancient Languages :					
Indo-Iranian Languages . . . . .					
The Classics (Greek, Latin) . . . . .	20			3	
Total in Ancient Languages . . . . .	— 20			3	
III. Modern Languages :					
English . . . . .	13			2	
Germanic Languages and Literatures . . . . .	1				
French . . . . .	3				
Italian and Spanish . . . . .					
Germanic and Romance Philology . . . . .				2	
In more than one Department . . . . .	4				
Total in Modern Languages . . . . .	— 21			4	

	DEGREES.			
	A.M.	S.M.	PH.D.	S.D.
IV. History and Political Science :				
History and Government . . . . .	18		3	
Political Economy . . . . .	4		1	
Total in Hist. and Political Sci. . . . .	— 22		— 4	
V. Philosophy . . . . .	10		4	
[Education and Teaching . . . . . 3]				
VI. Fine Arts . . . . .	1			
VII. Music.				
VIII. Mathematics . . . . .	6	1		
IX. Engineering.				
X. Physics . . . . .	5			
XI. Chemistry . . . . .	5	1	3	
XII. Biology :				
Botany . . . . .	3	1	2	
Zoölogy . . . . .	3	1		1
Total in Biology . . . . .	— 6	— 2	— 2	— 1
XIII. Geology :				
Geology and Geography . . . . .	2	1		
Mineralogy and Petrography . . . . .		1		
Total in Geology . . . . .	— 2	— 2		
XIV. American Archaeology and Ethnology . . . . .	1			
In more than one Division . . . . .	16			
Professional Students :				
Divinity School . . . . .	4		2	
Law School . . . . .	2			
Medical School . . . . .	2			
Total . . . . .	123	6	23	1

The degree of Doctor of Philosophy was conferred upon the twenty-three persons named below. With each name are given the special field in which the degree was taken, the candidate's academic history, and his present occupation.

#### Philology.

##### HENRY HARRISON HAYNES.

Semitic Languages and History. — A.B. 1873, S.T.B. (*Episcopal Theol. School, Cambridge*) 1877, A.M. 1887. — Res. Gr. Stud., 1886-88, 1898-99.

Professor of Hebrew and Old Testament Literature, Church Divinity School of the Pacific, San Mateo, Cal.; and Instructor in Semitic Languages, Leland Stanford Jr. University, Cal.

##### BENJAMIN OLIVER FOSTER.

Classical Philology. — A.B. (*Leland Stanford Jr. Univ., Cal.*) 1895, A.M. 1897. — Res. Gr. Stud., 1895-99.

Now studying Classical Philology at the American School of Classical Studies in Rome, as Parker Fellow.

##### ARTHUR GORDNER LEACOCK.

Classical Philology. — A.B. (*Syracuse Univ., N.Y.*) 1892, A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1892-94, 1896-97, and 1898-99. Instructor in Greek, Phillips Exeter Academy, N.H.

##### WALTON BROOKS MCDANIEL.

Classical Philology. — A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1893-96; Non-Res. Stud., 1897-98. Instructor in Greek and Latin at this University.

##### GEORGE WYLLYS BENEDICT.

English Philology. — A.B. (*Univ. of Vermont*) 1893, A.M. 1897. — Res. Gr. Stud., 1896-99. Instructor in English, Brown University, R.I.

**WILL DAVID HOWE.**

English Philology.—A.B. (*Univ. of Indianapolis, Ind.*) 1893, A.B. 1895, A.M. 1897.  
—Res. Gr. Stud., 1894-95 and 1896-99.  
Professor of the English Language and Literature, University of Indianapolis, Ind.

**THOMAS CARR HOWE.**

Germanic Philology.—Ph.B. (*Univ. of Indianapolis, Ind.*) 1889, A.M. (*ibid.*) 1893, A.M. 1897.—Res. Gr. Stud., 1896-99.  
Armstrong Professor of Germanic Languages, University of Indianapolis, Ind.

**MURRAY ANTHONY POTTER.**

Romance Philology.—A.B. 1895, A.M. 1897.—Res. Gr. Stud., 1896-99.  
Assistant Professor of French, Dartmouth College, N.H.

**Philosophy.****JOHN ELOF BOODIN.**

Theology.—A.B. (*Brown Univ., R.I.*) 1895, A.M. (*ibid.*) 1896.—Stud., Harvard Divinity School, 1897-99.  
Now studying Philosophy at this University, as James Walker Fellow.

**HERMAN HARRELL HORNE.**

Theology.—A.B. (*Univ. of North Carolina*) 1895, A.M. (*ibid.*) 1895, A.M. 1897.—Stud., Harvard Divinity School, 1896-99.  
Instructor in Philosophy, Dartmouth College, N.H.

**RALPH BARTON PERRY.**

Ethics.—A.B. (*Princeton Univ., N.J.*) 1896, A.M. 1897.—Res. Gr. Stud., 1896-98; Stud., Harvard Divinity School, 1898-99.  
Instructor in Philosophy, Williams College.

**ARTHUR HENRY PIERCE.**

Psychology.—A.B. (*Amherst Coll.*) 1888, A.M. 1892.—Res. Gr. Stud., 1891-94.  
Rufus B. Kellogg University Fellow and Lecturer, Amherst College.

**WILLIAM BRIGGS SAVERY.**

Theoretical Ethics.—A.B. (*Brown Univ., R.I.*) 1896, A.M. 1897.—Res. Gr. Stud., 1896-97 and 1898-99; Non-Res. Stud., 1897-98.  
Assistant in Philosophy and Student of Divinity at this University.

**WILMON HENRY SHEDDON.**

Metaphysics.—A.B. 1895, A.M. 1896.—Res. Gr. Stud., 1895-99.  
Assistant in Philosophy, University of Wisconsin.

**History.****ARTHUR LYON CROSS.**

American Colonial History.—A.B. 1895, A.M. 1896.—Res. Gr. Stud., 1895-97 and 1898-99; Non-Res. Stud., 1897-98.  
Instructor in History, University of Michigan.

**LOUIS CLINTON HATCH.**

American History from 1775 to 1861.—A.B. (*Bowdoin Coll., Me.*) 1895, A.B. 1896, A.M. 1897.—Res. Gr. Stud., 1895-99.  
Now travelling in Europe.

**NORMAN MACLAREN TRENHOLME.**

English Constitutional History to 1377.—A.B. (*McGill Univ., Que.*) 1895, A.M. 1897.—Res. Gr. Stud., 1896-99.  
Now studying History in England, as Harris Fellow.

**Political Science.****FREDERICK REDMAN CLOW.**

Public Finance.—A.B. (*Carleton Coll., Minn.*) 1889, A.B. 1891, A.M. (*Carleton Coll.*) 1892, A.M. 1892.—Res. Gr. Stud., 1891-92 and 1893-95.  
Teacher of History and Economics, State Normal School, Oshkosh, Wis.

**Chemistry.****GREGORY PAUL BAXTER.**

Inorganic Chemistry.—A.B. 1896, A.M. 1897.—Res. Gr. Stud., 1896-99.  
Instructor in Chemistry, Haverford College.

**GILBERT NEWTON LEWIS.**

Physical Chemistry.—A.B. 1896, A.M. 1898.—Res. Gr. Stud., 1896-97 and 1898-99.  
Instructor in Chemistry at this University.

**JOHN PERCIVAL SYLVESTER.**

Organic Chemistry.—A.B. 1895, A.M. 1896.—Res. Gr. Stud., 1895-99.  
Professor of Chemistry, Ohio University.

**Biology.****EDWARD CHARLES JEFFREY.**

Botany.—A.B. (*Univ. of Toronto, Ont.*) 1888.—Res. Gr. Stud., 1898-99.  
Lecturer in Biology (in charge of Botany), University of Toronto.

**EDWIN MEAD WILCOX.**

Botany.—S.B. (*Ohio State Univ.*) 1896, A.M. 1898.—Res. Gr. Stud., 1897-99.  
Now studying Economic Botany in the East, as Edwin F. Atkins Fellow.

The degree of Doctor of Science was conferred upon one candidate:—

**Biology.****JUSTUS WATSON FOLSOM.**

Zoölogy.—S.B. 1895.—Res. Gr. Stud., 1895-99.  
Professor of Natural Science, Antioch College, O.

Of these twenty-three Doctors of Philosophy, seventeen—or about two-thirds of the whole number—are now engaged in the active pursuit of a profession and may be regarded as having completed their preparatory professional study. All of the seventeen are



teachers either in colleges or universities (five are professors, ten are instructors) or in secondary institutions (two). Two only of these teachers are in the service of this University (as instructors). Four of the remaining six are continuing their studies or investigations abroad, three being holders of fellowships. Finally, two others are at this University, one a student of divinity, the other a student of philosophy. The past has shown that the holder of the degree of Doctor of Philosophy from this University is able almost invariably to obtain upon graduation an important position in an American college or university or in a secondary institution of the highest grade.

With respect to the academic history of these men it may be noted that all held a degree in arts before receiving the Doctor's degree; that all save one held the A.B. (and he was a Harvard Master of Arts); that all save two held a Harvard degree (A.M. only, nine; A.B. and A.M., twelve).

In the case of six candidates six or more years had elapsed since the candidate had received the Harvard A.B. or had been admitted to equivalent standing. Of the remainder four were A.B.'s (or its equivalent) of four years' standing, and twelve A.B.'s of three years' standing; one was an A.B. of only two years' standing. The period of resident study for the Doctor's degree was either two years (four candidates), three years (fourteen candidates), or four years (four candidates). One only of the Doctors had been but a single year in residence at this University. The average period of study for the degree is thus exactly three years. It appears from these statistics, taken with those of previous years, that candidates for the Harvard degree of Doctor of Philosophy normally devote three years to preparation for the degree, and that two of these years are regularly passed at this University.

The single candidate for the degree of Doctor of Science, a Harvard S.B. of four years' standing, who had been a Resident Student for four years before proceeding to the degree, is now a professor in a Western college.

At the present time, when there is much interest in the effort to bring down the age at which young men may complete the period of their undergraduate study and in consequence be enabled to enter active life, statistics as to the age at which men are now receiving the higher degrees at this University are of interest. These are given in Tables VII and VIII.

TABLE VII. — AGE OF GRADUATE STUDENTS RECOMMENDED FOR THE DEGREES OF MASTER OF ARTS, MASTER OF SCIENCE, AND DOCTOR OF PHILOSOPHY: 1899.

	21	22	23	24	25	26	27	28 or over	Total.
A.M.'s . . . . .	4	12	18	12	4	12	6	29	97
S.M.'s . . . . .	..	1	1	..	3	..	..	1	6
Ph.D.'s . . . . .	..	1	4	2	3	2	1	8	21

The average age of Masters of Arts, if we leave out of consideration men over twenty-eight years old — who are distinctly exceptional — for the past three years is almost exactly twenty-four years.

The Doctors of Philosophy are of course older, but the subjoined table (for the three years, 1897, 1898, and 1899) shows that their age is at least not increasing.

TABLE VIII. — AGE OF DOCTORS OF PHILOSOPHY CREATED IN 1897, 1898, AND 1899.

	22	23	24	25	26	27	28 or over
1897 . . . . .	..	..	3	1	4	2	15
1898 . . . . .	1	..	1	4	2	2	15
1899 . . . . .	1	4	2	3	2	1	8

In the President's Report for 1897-98 (page 33), a remark is made upon the Table of the Dean of the Graduate School (page 139) which shows the age of Masters of Arts, Masters of Science, and Doctors of Philosophy created in 1898: "The figures are formidable. 49 men out of 121 were twenty-eight years of age and over, and more than half the entire number were twenty-seven years of age or over. For such men two-fifths of their seventy years are over before they are able to support themselves." It should, however, be remembered that a goodly number of the Graduate Students, before taking up or continuing advanced study at the University, have already successfully filled important positions as teachers and have supported themselves. An examination of the annual catalogue of the Graduate School brings out this fact. The composition of the Graduate School thus differs from that of the Professional Schools, where nearly every student is learning his profession. Many of our Graduate Students have already learned their profession, and resort to the School mainly to perfect themselves in some detail of their work, or to qualify themselves for rapid advancement or for a wider field of activity.

## FELLOWSHIPS AND SCHOLARSHIPS.

The appointments to fellowships and scholarships for 1898-99 were made toward the close of the preceding academic year, chiefly in June 1898. Similarly the appointments for the current year 1899-1900 were for the most part made within the academic year covered by the present Report. The recommendations to fellowships and scholarships are made by the Faculty of Arts and Sciences on the nomination of its Committee on Fellowships and Other Aids for Graduate Students, and thus form a part of the business of that Faculty. But as the persons appointed are members of the Graduate School information on this subject has always been given in the reports of the Dean of the Graduate School.

Twenty-five fellowships and fifty-one scholarships\* were held by students in the Graduate School in 1898-99. With the fellowships are included the John Harvard Fellowships without stipend; in 1898-99 there were three appointments to these fellowships. Twelve of the fellowships (as against fifteen in 1897-98), including the three John Harvard Fellowships, were held by Non-Resident Students who pursued their studies abroad,—in England (1), France (3), Germany (6), Russia (1), and Greece (1). Thirteen of the fellowships and all the scholarships were held by Resident Students. The amount of money paid to holders of these appointments was \$23,050.

For 1899-1900 appointments have been made to thirty-two fellowships and to sixty-one scholarships;† the expenditure involved is \$30,800 (but see p. 155).

The names of the holders of fellowships during the two academic years 1898-99 and 1899-1900, with statements as to the present occupation of each, follow. The fellowships are arranged in the order of foundation.

\* Or—exclusive of the three John Harvard fellowships; the Hemenway fellowship, the Ricardo fellowship (scholarship), the Virginia Barret Gibbs scholarship, and the scholarships of the Harvard Clubs of Chicago and San Francisco, the nominations to which are subject to conditions—twenty fellowships and forty-eight scholarships.

† The fellowships include three John Harvard fellowships, eight new Austin teaching fellowships, and the Atkins fellowship (for 1899-1900 only). One of the Whiting fellowships and the Hemenway fellowship are vacant (November, 1899).

The scholarships include the new Weld scholarship, the eight new Austin scholarships for teachers, a special University scholarship, the Virginia Barret Gibbs scholarship, and the scholarships of the Harvard Clubs of Chicago and San Francisco. A Thayer scholarship is vacant.

## 1898-99.

## Harris Fellowship.

## MURRAY ANTHONY POTTER.

A.B. 1895, A.M. 1897, PH.D. (Romance Philology) 1899. — Res. Gr. Stud., 1896-98. — Townsend Scholar, 1897-98. — Student of Romance Languages and Comparative Literature at this University.  
Assistant Professor of French, Dartmouth College.

## 1899-1900.

## NORMAN MACLAREN TRENHOLME.

A.B. (*McGill Univ., Que.*) 1895, A.M. 1897, PH.D. (History) 1899. — Res. Gr. Stud., 1896-99. — Edward Russell Scholar, 1896-97; Thayer Scholar, 1897-98. — Assistant in History, 1898-99.  
Student of History, in England.

## Rogers Fellowships.

## ARTHUR STODDARD COOLEY.

*Reappointed.*  
A.B. (*Amherst Coll.*) 1891, A.M. 1893, PH.D. (Classical Philology) 1896. — Res. Gr. Stud., 1892-97; Non-Res. Stud., 1897-99. — Thayer Scholar, 1893-94; Shattuck Scholar, 1894-95; Morgan Fellow, 1895-96. — Instructor in Greek, 1896-97. — Student of Classical Philology and Archaeology, at Athens.  
Professor of Greek and German, Fairmount College, Kan.

## SIDNEY BRADSHAW FAY.

(See Parker Fellowships, 1898-99.)

## MACY MILLMORE SKINNER.

*Reappointed.*  
A.B. 1894, A.M. 1895, PH.D. (Semitic Languages and History) 1897. — Res. Gr. Stud., 1894-97; Non-Res. Stud., 1897-99. — Townsend Scholar, 1894-95; University Scholar, 1895-96; Shattuck Scholar, 1896-97. — Assistant in Semitic Languages, 1894-97. — Student of Semitic Languages and History, in Strasburg (1897-98), and in Berlin (1898-99).

Austin Teaching Fellow in German, at this University.

## PRESCOTT ORDE SKINNER.

A.B. 1896, A.M. 1897. — Res. Gr. Stud., 1896-98. — Instructor in Spanish and Italian, 1897-99.  
Student of Romance Philology, in Paris.

## Parker Fellowships.

## FRANK WATTS BANCROFT.

S.B. (*Univ. of California*) 1894, S.M. (*ibid.*) 1896, A.M. 1897, PH.D. (Biology) 1898. — Res. Gr. Stud., 1896-98; Non-Res. Stud., 1898-99. — Virginia Barret Gibbs Scholar, 1896-97; Morgan Fellow, 1897-98. — Student of Zoölogy, in Berlin.  
Now continuing his studies in Europe, as Parker Fellow. Appointed to an instructorship in the University of California.

## FRANK WATTS BANCROFT.

*Reappointed.*

## SIDNEY BRADSHAW FAY.

A.B. 1896, A.M. 1897. — Res. Gr. Stud., 1896-98; Non-Res. Stud., 1898-99. — Assistant in History, 1896-98. — Student of History, in Paris.  
Now continuing his studies in Europe, as Rogers Fellow.

## BENJAMIN OLIVER FOSTER.

A.B. (*Leland Stanford Jr. Univ., Cal.*) 1895, A.M. 1897, PH.D. (Classical Philology) 1899, Res. Gr. Stud., 1895-99. — University Scholar, 1895-96; Townsend Scholar, 1896-97; Thayer Scholar, 1897-99.  
Student of Classical Philology, at Rome.

## JOHN ALBRECHT WALZ.

*Reappointed.*  
A.B. (*Northwestern Univ., Ill.*) 1892, A.M. 1895, PH.D. (Germanic Philology) 1897. — Res. Gr. Stud., 1894-97; Non-Res. Stud., 1897-99. — Scholar of the Harvard Club of Chicago, 1894-95. — Instructor in German, 1895-97. — Student of Germanic Philology and Literature, in Berlin.  
Instructor in German, Western Reserve University, O.

## EARLE RAYMOND HEDRICK.

(See Morgan Fellowships, 1898-99.)

## JOHN ANDREAS WIDTSOE.

S.B. 1894. — Professor of Chemistry and Mineralogy, Utah Agricultural College, on leave of absence; Chemist, 1894-98, to the U.S. Agricultural Experiment Station for Utah. — Non-Res. Stud., 1898-99. — Student of Chemistry, at Göttingen.  
Now continuing his studies at Hamburg, as Parker Fellow.

## JOHN ANDREAS WIDTSOE.

*Reappointed.*



1898-99.

1899-1900.

## John Thornton Kirkland Fellowship.

## CHARLES SUMNER GRIFFIN.

A.B. (*Univ. of Kansas*) 1894, A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-98; Non-Res. Stud., 1898-99. — University Scholar, 1895-96. — Assistant in Political Economy, 1896-98. — Student of Economics in Europe. Instructor in Economics, Imperial University, Tokyo, Japan.

## JESSE MORE GREENMAN.

S.B. (*Univ. of Pennsylvania*) 1893, S.M. 1899. — Res. Gr. Stud., 1898-99. — Assistant in the Gray Herbarium, 1894-99. Student of Botany, in Berlin.

## James Walker Fellowship.

## ARTHUR ONCKEN LOVEJOY.

A.B. (*Univ. of California*) 1895, A.M. 1897. — Res. Gr. Stud., 1895-98; Non-Res. Stud., 1898-99. — Scholar of the Harvard Club of San Francisco, 1895-96; University Scholar, 1897-98. — Student of Philosophy, in Paris.

Assistant Professor of Philosophy, Leland Stanford Jr. University, Cal.

## JOHN ELOF BOODIN.

A.B. (*Brown Univ., R.I.*) 1895, A.M. (*ibid.*) 1896, PH.D. (Philosophy) 1899. — Student in Harvard Divinity School, 1897-99. Student of Philosophy, at this University.

## Morgan Fellowships.

## AMADEUS WILLIAM GRABAU.

S.B. (*Massachusetts Institute of Technology*) 1896, S.M. 1898. — Res. Gr. Stud., 1897-99. — Thayer Scholar, 1897-98. — Student of Palaeontology, at this University. Now continuing his studies at this University, as Morgan Fellow.

## AMADEUS WILLIAM GRABAU.

*Reappointed.*

## EARLE RAYMOND HEDRICK.

A.B. (*Univ. of Michigan*) 1896, A.M. 1898. — Res. Gr. Stud., 1897-99. — Shattuck Scholar, 1897-98. — Student of Mathematics, at this University.

Now continuing his studies at Göttingen, as Parker Fellow.

## CAMPBELL BONNER.

A.B. (*Vanderbilt Univ., Tenn.*) 1896, A.M. (*ibid.*) 1897, A.M. 1898. — Res. Gr. Stud., 1897-99. — University Scholar, 1897-98; George and Martha Derby Scholar, 1898-99. Student of Classical Philology, at this University.

## EDWARD CHARLES JEFFREY.

A.B. (*Univ. of Toronto, Ont.*) 1888. — PH.D. (Biology) 1899. — Res. Gr. Stud., 1898-99. — Student of Botany, at this University. Lecturer in Biology (in charge of Botany), University of Toronto.

## ARTHUR CHARLES LEWIS BROWN.

A.B. (*Hobart Coll., N.Y.*) 1893, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-96 and 1898-99. — University Scholar, 1894-95. Student of English, at this University.

## WILLIAM BRIGGS SAVERY.

A.B. (*Brown Univ., R.I.*) 1896, A.M. 1897, PH.D. (Philosophy) 1899. — Res. Gr. Stud., 1896-97 and 1898-99; Non-Res. Stud., 1897-98. — James Walker Fellow, 1897-98. — Assistant in Philosophy, 1896-97. — Student of Philosophy, at this University. Junior Divinity Student and Assistant in Philosophy, at this University.

## FRED MONROE TISDEL.

A.B. (*Northwestern Univ., Ill.*) 1891, A.M. (*Univ. of Wisconsin*) 1893, A.M. 1894. — Assistant Professor of Rhetoric and Oratory, 1895-98, Oberlin Coll., O. — Res. Gr. Stud., 1893-95 and 1898-99. — Shattuck Scholar, 1894-95; Thayer Scholar, 1898-99. Student of English and Comparative Literature, at this University.

## John Tyndall Scholarship.

## HARRISON HITCHCOCK BROWN.

*Reappointed.*

A.B. (*Amherst Coll.*) 1889, A.M. 1895. — Res. Gr. Stud., 1894-99. — Townsend Scholar, 1896-97. — Student of Physics at this University.

Assistant in Physics, at this University.

## GEORGE WASHINGTON PIERCE.

(See Whiting Fellowships, 1898-99.)

## Robert Treat Paine Fellowship.

## JOHN EDWARD GEORGE.

*Reappointed.*

PH.B. (*Northwestern Univ., Ill.*) 1895, A.M. 1897. — Res. Gr. Stud., 1896-98; Non-Res. Stud., 1898-99. — Student of the Ethical Problems of Society, at this University (1897-98), and in Germany (1898-99).

Engaged in sociological investigation, in Chicago.

## FREDERICK ALEXANDER BUSHÉE.

LITT.B. (*Dartmouth Coll., N.H.*) 1894, A.M. 1898. — Res. Gr. Stud., 1897-99. — University Scholar, 1897-98; Townsend Scholar, 1898-99. Student of Economics, at this University.

1898-99.

1899-1900.

## Henry Lee Memorial Fellowship.

WILLIAM LYON MACKENZIE KING.

A.B. (*Univ. of Toronto, Ont.*) 1895, LL.B. (*ibid.*) 1896, A.M. (*ibid.*) 1897, A.M. 1898.  
 — Res. Gr. Stud., 1897-99. — Townsend Scholar, 1897-98. — Student of Political Economy at this University.  
 Now continuing his studies in London, as Henry Lee Memorial Fellow.

WILLIAM LYON MACKENZIE KING.

*Reappointed.*

## Ozias Goodwin Memorial Fellowship.

*No appointment.*

WILLIAM BENNETT MUNRO.

A.M. (*Queen's Univ., Ont.*) 1896, LL.B. (*ibid.*) 1897, A.M. 1899. — Res. Gr. Stud., 1898-99.  
 — University Scholar, 1898-99.  
 Student of History and Political Science, at this University.

## Henry Bromfield Rogers Memorial Fellowship.

GEORGE HENRY BOKE.

Ph.B. (*Univ. of California*) 1894. — Res. Gr. Stud., 1898-99. — Student of Ethics in its relations to Jurisprudence at this University.  
 Now continuing his studies at this University, as Henry Bromfield Rogers Memorial Fellow.

GEORGE HENRY BOKE.

*Reappointed.*

## Hemenway Fellowship.

ROLAND BURRAGE DIXON.

A.B. 1897, A.M. 1899. — Res. Gr. Stud., 1897-99. — Assistant in Anthropology, 1898-99. — Student of American Archaeology and Ethnology, at this University.  
 Assistant in Anthropology, and Student of American Archaeology and Ethnology, at this University.  
 [Appointed March 16, 1899.]

*Appointment for 1899-1900 not yet announced.*

## John Harvard Fellowships.

GEORGE RAPALL NOYES.

A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-98; Non-Res. Stud., 1898-99. — James Savage Scholar, 1896-97; Thayer Scholar, 1897-98. — Student of Slavic Languages in St. Petersburg.  
 Now continuing his studies in St. Petersburg, as John Harvard Fellow.

GEORGE RAPALL NOYES.

*Reappointed.*

JOSEPH TRUMBULL STICKNEY.

A.B. 1895. — Non-Res. Stud., 1898-99. — Student of Classical Philology and Sanskrit in Paris.  
 Now continuing his studies in Paris, as John Harvard Fellow.

JOSEPH TRUMBULL STICKNEY.

*Reappointed.*

JAMES KELSEY WHITTEMORE.

*Reappointed.*  
 A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-97; Non-Res. Stud., 1897-98. — Instructor in Mathematics, 1896-97. — Student of Mathematics, in Paris (1897-98), and in Göttingen (1898-99).  
 Instructor in Mathematics, at this University.

EDWARD KENNARD RAND.

A.B. 1894, A.M. 1895. — Res. Div. Stud., 1894-95.  
 Student of Late Latin, at the University of Munich.

1898-99.

1899-1900.

## Whiting Fellowships.

JOHN EMERSON BURBANK.

*Reappointed.*A.B. (*Bowdoin Coll., Me.*) 1896, A.M. (*ibid.*)

1897, A.M. 1899. — Res. Gr. Stud., 1897-99.

— Student of Physics at this University.

Instructor in Physics, Bowdoin College.

HAROLD EDWARDS.

*Reappointed.*

A.B. 1896. — Res. Gr. Stud., 1896-99. —

Thayer Scholar, 1896-97. — Student of

Physics at this University.

With the General Electric Company, Sche-

nectady, N. Y.

GEORGE WASHINGTON PIERCE.

S.B. (*Univ. of Texas*) 1893, A.M. (*ibid.*) 1894.

— Res. Gr. Stud., Feb. 1898-99. — Student

of Physics, at this University.

Now continuing his studies at this Uni-

versity, as John Tyndall Scholar.

EDWIN PLIMPTON ADAMS.

S.B. (*Beloit Coll., Wis.*) 1899.

Student of Physics and Mathematics, at this

University.

EDWARD MAURICE MONTCHYK.

S.B. (*Univ. of Colorado*) 1899.

Student of Physics and Mathematics, at this

University.

*One vacancy.*

## Ricardo Fellowship.

FRANK HENDRICK.

A.B. 1897. — Res. Gr. Stud., 1898-99; Stu-

dent, Harvard Law School, 1897-99. —

Student of Economics and Law at this

University.

Now studying Law, associated with the firm

of Story, Thorndike, and Palmer, Boston.

*No appointment is made for 1899-1900.*

## Edwin F. Atkins Fellowship (special for 1899-1900).

EDWIN MEAD WILCOX.

S.B. (*Ohio State Univ.*) 1896, A.M. 1898, PH.D.

(Biology) 1899. — Res. Gr. Stud., 1897-99.

— James Savage Scholar, 1897-98; Thayer

Scholar, 1898-99.

Student of Economic Botany, in the East.

Ten of the twenty-four holders of fellowships in 1898-99 are now engaged in teaching, all in colleges or universities (including three at this University). One is engaged in sociological investigation in Chicago. One is studying law in Boston, and preparing for publication the results of his work as fellow. The remainder—thirteen—are continuing their studies,—at this University (five) or abroad (seven). Seven only, of the whole number, hold the degree of Ph.D. Ten of the fellowship holders in 1898-99 have similar appointments for the current year.

# FELLOWSHIPS AND SCHOLARSHIPS: APPLICATIONS AND APPOINTMENTS.

The following Table gives the usual statistics relative to the applications and appointments for the three successive years, 1897-98, 1898-99, and 1899-1900:—

TABLE IX. — FELLOWSHIPS AND SCHOLARSHIPS (1897-99).

## 1. *Applications and Appointments.*

	1897-98.	1898-99.	1899-1900.
Spring applicants for reappointment or promotion . . . . .	50	47	48
Spring applicants for a first appointment . .	225	222	230
Later applicants . . . . .	29 304	38 307	76 354
Appointed to fellowships . . . . .	21	20	20*
Appointed to scholarships . . . . .	50	48	58
Appointed instructors or assistants . . . .	20 91	14 82	21 99
Deduct for repetitions . . . . .	2	2	1
	89	80	98
Entered or continued in the Graduate School without receiving any of the above-named appointments . . . . .	55	76	64
Entered undergraduate classes of Harvard College . . . . .	8	4	11
Entered other departments of the University	10 73	5 85	3 78
Applicants who were at the University in the year following their applications . .	162	165	176
Applicants not at the University in that year	142	142	178
	304	307	354

\* This figure does not include the eight Austin teaching fellowships established in 1899; the three John Harvard fellowships; or the (special) Atkins fellowship.



2. *Classification of Applicants and Appointees.*

	1897-98.		1898-99.		1899-1900.	
	Applicants.	Appointees.	Applicants.	Appointees.	Applicants.	Appointees.
Students of Philology . . . . .	101	23	107	24	132	25
Students of Philosophy, History, or Political Science . . . . .	103	19	106	19	119	24
Students of Mathematics, Physics, or Chemistry	60	19	55	17	62	17
Students of Natural History . . . . .	38	10	35	7	37	11
Students of other branches, or unclassified . .	2	0	4	1	4	1
	304	71	307	68	354	78
Students in the Graduate School . . . . .	104	43	115	43	111	51
Students in Harvard College . . . . .	29	6	25	6	39	2
Students in other Departments of the University	6	1	6	1	7	1
Former students in some Department of the University . . . . .	27	2	28	5	28	3
Persons never previously members of the University . . . . .	138	19	133	13	169	21
	304	71	307	68	354	78
Harvard Bachelors of Arts or Science, not previously graduated elsewhere . . . . .	38	15	35	16	37	15
Harvard Bachelors of Arts or Science, previously graduated elsewhere . . . . .	23	5	21	5	15	5
Graduates of other institutions, not Harvard Bachelors of Arts or Science . . . . .	187	47	207	42	244	54
Undergraduates of Harvard College, not already graduated elsewhere . . . . .	21	4	19	5	26	2
Undergraduates of other institutions and other non-graduates . . . . .	35	0	25	0	32	2
	304	71	307	68	354	78

The Table (IX) suggests many comments. The number of applicants in 1899 for fellowships and scholarships was much greater than in any previous year, applicants in the divisions of ancient and modern languages being especially numerous. Of applicants who were or had been members of the Graduate School about one-half received an appointment. Of those who had never previously been members of the University about one in six was successful. Of applicants who hold a Harvard bachelor's degree about two in five were successful, while of the very large number of those who hold no bachelor's degree from Harvard about one in five received an appointment. It appears from these proportions, which vary only slightly from year to year, that it is an advantage to an applicant to be the holder of a Harvard bachelor's degree or to have spent a period of time in study at the University. On the other hand, the large number of appointments of men who do not hold the first degree of arts from Harvard (fifty-four appointments out of two hundred and forty-four applicants in 1899) shows that the graduates of other colleges are by no means discriminated against.

#### INSTRUCTORSHIPS AND ASSISTANTSHIPS.

A small proportion of the members of the Graduate School serve the University as instructors and assistants by regular appointment of the Corporation. These men find time both to do a certain amount of advanced work (often of research), and to give instruction, or to aid other teachers in their instruction. The amount of their work in the School varies from a "half-course" to what is technically known as "full work" (four courses). In 1898-99 five members of the School were appointed to instructorships and thirty-eight to assistantships; in the current year there are five instructors and thirty-five assistants under appointment of the Corporation. Besides these thirty-five assistants there are eight Austin teaching fellows, three only of whom, however, are members of the Graduate School. The Table (IX) shows that many of the annual appointments to these positions are made from among applicants for fellowships and scholarships in the Graduate School.

Of the three hundred and thirty-six members of the School in 1898-99, one hundred and fifteen—about thirty-four per cent., a lower percentage than in previous years—were holders either of instructorships, assistantships, fellowships with stipends, or scholarships. In this count no note is taken of proctorships and other similar appointments by which students in the School may reduce their expenses.

## NEW FELLOWSHIPS AND SCHOLARSHIPS.

The year 1898-99 was marked by the foundation of several new fellowships and scholarships. Of these the Austin teaching fellowships and the Austin scholarships for teachers are new departures. As these scholarships and fellowships were established late in the year, appointments to them were first made for the academic year 1899-1900.

Until the current academic year the number of fellowships and scholarships had remained almost the same as it had been for seven years, though the membership of the School had constantly increased within that period, so that it was in 1898-99 (and is in the present year) more than half again as large as it was in 1893. In 1892-93 with a membership of 214 (Resident, 198; Non-Resident, 16) \$22,850 was given in fellowships and scholarships (22 fellowships, \$12,000; 48 scholarships, \$10,820). In 1898-99, with a membership of 336 (Resident, 321; Non-Resident, 15), \$23,050 was awarded (22 fellowships, \$11,400; 51 scholarships, \$11,650). For the present year 1899-1900 the amount has been increased nominally to \$30,800, but actually to \$26,800.\*

Eight Austin teaching fellowships, with an income of \$500, and eight Austin scholarships for teachers with an income of \$250 were founded in June 1899 by the Corporation under the bequest of the late Edward Austin for "needy, meritorious students, and teachers to assist them in payment of their studies."

After consultation with the Faculty the Corporation decided to offer the teaching fellowships to eight men that otherwise would have been engaged either as instructors or assistants under the Faculty of Arts and Sciences, who should be recommended for appointment by the appropriate Departmental or Divisional Committees. The conditions upon which the awards will be made in subsequent years will be determined later.

The Austin scholarships for teachers, as at present administered, are intended for men who have become established in the profession of teaching, and wish — ordinarily upon leave of absence — to pursue advanced studies at the University for a period of one year. The preference is given in these appointments to men of maturity and established reputation, teachers in colleges and schools, superintendents of schools, and the like. It is an interesting fact that,

\* The Austin teaching fellowships (\$4,000) are not, as administered in 1899-1900, an addition to the actual provision of fellowships; they take the place of what otherwise would be assistantships or instructorships.

although notice of the establishment of these scholarships was not issued until late in June, sixty-five applications for them were received before the assignments were made. As the membership of the School consists to a large extent of men who are already professional teachers (often on leave of absence), the number of persons really eligible for an appointment to the Austin scholarships for teachers will always be very much in excess of the provision of scholarships, and the task of selecting the appointees will be one of serious difficulty.

Record should here be made of the Austin travelling fellowship in Architecture (established in 1899) for \$1,000,—open to distinguished graduates of the Department of Architecture of Harvard University, of not more than three years' standing. The appointments to this fellowship, which are made on the basis of competitive examination, are made by the Corporation on the immediate recommendation of the Department of Architecture.

The Christopher M. Weld Scholarship, with an income at present of \$300 a year, was established in the Graduate School by the Corporation on April 24, 1899, under the following provision in the will of Mrs. Mary Ann P. Weld: "I give to the President and Fellows of Harvard College the sum of \$10,000, to found a Scholarship, to be known as the Christopher M. Weld Scholarship, and it is my wish that this Scholarship be awarded in the discretion of the proper College authorities to the most worthy student, consideration being had for pecuniary means, character and sincerity of effort."

An interesting Scholarship, founded in 1898 but awarded for the first time to a student in the Graduate School in 1899-1900, is the Francis Hathaway Cummings Scholarship, with an income of \$200. It was founded by Charles A. Cummings and Margaret E. Cummings, in memory of their son, after whom it is named, of the Class of 1895. "The income of the Scholarship is to be used for the benefit of students of approved merit who hold the degree of Bachelor of Arts from Harvard College who need assistance, and who wish to pursue either in the Graduate School, the Lawrence Scientific School or the Bussey Institute a course of study in applied botany, or in such other branches of the University teaching as will best prepare them for the profession of landscape gardener, or for the efficient practice of horticulture, arboriculture or forestry."

The Edwin F. Atkins fellowship (for 1899-1900) on a branch of Economic Botany is held by one of the Doctors of Philosophy of 1899, who is continuing his investigations—"the study of the improvement of sugar cane and other tropical plants"—at present in the East Indies.



## FEDERATION OF GRADUATE CLUBS.

At the Christmas recess, 1898, the fourth annual convention of the Federation of Graduate Clubs met at Cambridge by invitation of the Graduate Club of Harvard University and the delegates were entertained as the guests of the Graduate Clubs of Harvard and Radcliffe. The following colleges and universities were represented: Barnard, Brown, Bryn Mawr, Chicago, Clark, Columbia, Columbian, Cornell, Harvard, Leland Stanford Jr., Michigan, New York, Pennsylvania, Radcliffe, Wellesley, Western Reserve, and Yale. There were twenty-nine delegates present.

The address of welcome was made by President Eliot, and an address on Graduate Instruction in the United States was delivered by Professor John Williams White before the members of the Federation and their friends. At the several sessions of the convention, many important topics were discussed, such as the Migration of Graduate Students, Specialized Scholarship *vs.* Preparation for Teaching as a Basis for Graduate Study, the Master's Degree, Graduate Study in European Universities, and the Relation of Graduate to Undergraduate Courses. These discussions were for the most part introduced by carefully prepared papers and were highly instructive to all who heard them. There can be no doubt that the Federation is doing a useful work in raising the standard of Graduate study in America. It does this not only by the discussions which are carried on at the annual convention and by the publication of its Handbook, but chiefly by promoting a more intelligent knowledge of each other on the part of the different universities represented in it. An account of the proceedings of the convention, Professor White's address in full, and abstracts of the leading papers presented, with brief summaries of the discussions, and a list of the subjects of theses for the degree of Ph.D. in 1898 are printed in the *Graduate Handbook* (Lippincott Press, 1899).

DEGREE OF BACHELOR OF ARTS CONFERRED IN  
THE GRADUATE SCHOOL.

The diminution of the number of persons recommended for the degree of Bachelor of Arts in the Graduate School, taken with the increase in the number of the Masters of Arts (Table X), suggests the renewal of the proposition that the degree of Bachelor of Arts be abolished in the Graduate School. Except in the case of a few very young men recently graduated from other American Colleges, the

TABLE X.—THE DEGREES OF A.B. AND A.M. CONFERRED IN THE GRADUATE SCHOOL.

	Total No. of Students.	A.B.	A.M.		Total No. of Students.	A.B.	A.M.
1886-87	78	2	18	1893-94	259	19	93
1887-88	97	2	32	1894-95	272	24	84
1888-89	99	6	23	1895-96	299	16	98
1889-90	111	3	31	1896-97	306	14	112
1890-91	133	7	45	1897-98	293	18	113
1891-92	200	14	78	1898-99	336	8	123
1892-93	206	17	70				

degree is now given in the Graduate School to men who have failed in the attempt to come up to the standard of the Master's degree. The Administrative Board is of the opinion that the practice of bestowing the degree through the Graduate School should be discontinued, and that the graduates of other colleges who seek the Harvard A.B. should be required to register in Harvard College. If the A.B., as leading up to A.M. and Ph.D. is appropriately given in the Graduate School, the degree of S.B., as leading up to S.M. and S.D., should also be there given, but no one has ever made such a proposition seriously, — except in one totally exceptional case, in 1892, when the degree was actually conferred on a Graduate student. The practice, though useful in the past, has now outlived its usefulness. As has already been urged in an earlier Report, it tends to draw into the School men who do not belong there; and it blurs the definition of the Harvard A.B., — how can men who have never been in Harvard College at all be recognized as members of such and such a Harvard Class? It is from all points of view an anomaly, and deprives the School, at least in this respect, of its right to the title of "Graduate" School. The Board would by no means exclude from the School properly qualified persons who wish to pursue Undergraduate studies, even if these studies be miscellaneous and elementary, provided such persons carry them on without reference to a degree. The degrees, however, of the Graduate School should be Graduate degrees, given for Graduate study.

In addition to the ordinary routine business — admission of students to the School and to candidacy for the higher degrees, action on programmes of courses offered by students for the degree of Master of Arts, consideration of various petitions and inquiries —

four subjects of a more general nature engaged the attention of the Administrative Board in 1898-99.

In March, 1899, after a full discussion, the Board recommended the foundation of five new resident fellowships (of \$500 each), and of fifteen or more new university scholarships (of \$150 each). This recommendation was made to the President before the Edward Austin Fund was known to be available. Additional suggestions were made by various members of the Faculty, and the Corporation duly established the Austin teaching fellowships (eight, for \$500 each) and the Austin scholarships for teachers (eight, for \$250 each), already mentioned on p. 155. The Board believes that learning and science can be advanced and intellectual character and power developed in no more effective way through the Graduate School than by an ampler endowment of research and by the provision of larger opportunities for the untroubled pursuit of the higher studies; the holders of fellowships should be men whose primary interest and occupation is research.

While considering a programme of study offered by a candidate for the degree of Master of Arts (a Harvard A.B.), the Board had occasion to ascertain more clearly than before both the extent and the limits of its duty in such matters. The candidate in question had taken for two years a "course of research," which each year had been reported by the instructor in charge as entitled to the rating of two courses, thus securing a total of four advanced and related courses, the normal requirement for the degree of Master of Arts. It was contended by some that the Board had no option in the case, the course of research having been approved and accepted by the Faculty as a suitable course for Graduate students. On the other hand it was urged that the Board, as custodian of the degree of Master of Arts, had a larger duty than that of formally approving a programme of study the several constituents of which taken separately satisfied technical requirements; that it had the duty of considering the value and sufficiency of proposed combinations of courses, especially of courses of research, for the degree. The matter was referred to the Faculty, and the Faculty sustained the Board in the latter view of its functions and duty.

The Board was asked in the course of the winter to consider the question of the advisability of a change in the name of the School: it was represented to the Board that the name "Graduate School" has become misleading and is no longer distinctive, since the other Schools—notably Law and Divinity—are now Graduate Schools or soon will be (Medical). The Board replied that the term "Graduate School", if understood in its original sense as an abbreviated form

of "Graduate School of Arts and Sciences," is a distinctive name, and appropriate to this School alone; the School is the Graduate department of the institution of which the College and the Scientific School are the Undergraduate departments. The proposition that the Graduate School should be called the School of Philosophy was not favorably received, as likely to lead to confusion and misunderstanding. While not wholly satisfied with the present name of the School, the Board was of opinion — an opinion strengthened by the apparent trend of usage in the United States — that no change was desirable; if, however, a change must be made, the Board would prefer some such name as "the Graduate School of Arts and Sciences."

For many years the proposition that the dissertations of Doctors of Philosophy and of Science should be printed and distributed has been discussed in the Board, and there has always been consensus of opinion in favor of adequate publication. A Committee of the Board was appointed in the course of the year to make a recommendation. The Committee has collected, chiefly through the kind offices of the Librarian of the University, a mass of information that bears on the subject, and will soon report. The larger number of Harvard dissertations are actually published in one form or another. The question of the expense to the candidates for publishing, and the effect which required publication might have upon the thoroughness and exhaustiveness of the work offered (it being much less costly to write a very large thesis than to print an abbreviated one) are matters that the Committee and Board will duly weigh. A useful foundation in the University would be that of a fund for the publication of meritorious dissertations that but for such a fund might not be published at all.

The formal opening meeting of the School for the current year (1899-1900) took place on Thursday evening, October 5, in the Faculty Room. The Corporation, the Board of Overseers, officers of instruction and administration, and the members of the School were invited to be present, and over three hundred persons assembled. Professor J. M. Peirce, for nearly twenty-five years at the head of the School (1871-95), as Secretary of the Academic Council and as its first Dean, delivered an address on Graduate Study and the ideals of the Graduate Student. Short addresses were made by President Eliot, and Mr. A. S. Wheeler, President of the Graduate Club.

JOHN HENRY WRIGHT, *Dean*.



## THE DIVINITY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — AS Dean of the Divinity School, I have the honor to present the following report for the academic year 1898-99 : —

There were enrolled in the School last year twenty-six students, namely : —

Resident Graduates . . . . .	9	Junior Class . . . . .	8
Senior Class . . . . .	2	Special Students . . . . .	2
Middle Class . . . . .	5		

Nineteen colleges were represented as follows : —

Bates . . . . .	1	Ohio State University . . . . .	1
Brown University . . . . .	2	Ohio Wesleyan University . . .	1
De Pauw University . . . . .	1	Princeton University . . . . .	1
Harvard University . . . . .	8	Leland Stanford Jr. University	1
Hobart . . . . .	1	Tufts . . . . .	2
Hope . . . . .	1	Union . . . . .	1
University of Indianapolis . . .	1	Wesleyan University . . . . .	1
University of Missouri . . . . .	1	University of Wooster . . . . .	1
University of Nebraska . . . . .	1	Yale University . . . . .	1
University of North Carolina . .	1		

Eight Theological Seminaries were represented as follows : —

Cambridge Episcopal . . . . .	2	New Church, Cambridge . . . . .	1
Gammon . . . . .	1	Newton . . . . .	1
Hamilton . . . . .	1	Princeton . . . . .	1
McCormick . . . . .	1		

Degrees were taken by members of the School as follows : S.T.B. 2 ; Ph.D. 3 ; A.M. 5. Both the men who took the degree S.T.B. were graduates of other Seminaries.

During the last summer two changes were made in Divinity Hall from which good results are anticipated. Twenty rooms were supplied with simple and substantial furniture, a small addition being made to the rent of each. The furnishing of these rooms seemed especially desirable from the fact that so many of our students come only for a year. The other change referred to was the arrangement of what will be known as the "Common Room." The partition between two rooms was taken away and they were redivided so as to form a larger and a smaller room opening into one another by large doors.

The smaller room will be used as a reading room, and the larger for social purposes. The rooms are furnished in an attractive manner. This arrangement was made possible by money given to the President and Fellows of Harvard College, shortly after his graduation from the School in 1872, by Rev. John William Quinby. This money was to be expended under the direction of the Faculty of the Divinity School; and it seemed to that body that no expenditure of a portion of it, together with the interest that had accumulated, could be more useful to the School and more honorable to the giver than this. An inscription will commemorate the generosity that made this extremely pleasant feature of the School possible.

By the action of the Association of the Alumni at its last meeting a valuable collection of objects illustrating the fauna and flora of Palestine and the habits of life of the people of that country was presented to the School. The collection was made by Selah Merrill, D.D., who had exceptional advantages for this purpose. Parts of it could now be duplicated only with great difficulty if at all. The gift will form an important aid in the study of the Bible, and is especially welcome as showing the interest taken in the School by its Alumni.

The most important event to be noticed in this Report is the opening of a Summer School of Theology. The arrangements for this were put into the hands of a special committee consisting of Professor Lyon as chairman and Assistant Professors Hale, Platner, and Ropes; and much of the success of the undertaking is due to them. The School was started as an experiment, but it will probably take its place as one of the regular events of the year. It extended from July 5th to July 21st. Three lectures were given each forenoon, and these constituted the regular work of the School. Occasional lectures of a more general nature were given in the evening. Only three departments of theological study were represented: the plan being to present others the next year, should the School be held. Teachers from other institutions were invited to unite with some of the teachers of our own School and College in the instruction given. Some of the evening lectures were by persons not connected with any college or seminary. Every one who was thus invited accepted with great apparent interest. Representatives of other institutions who lectured in the forenoon were Professor A. V. G. Allen, D.D., of the Cambridge Theological School; Professor William N. Clarke, D.D., of Colgate University; President William DeWitt Hyde, D.D., LL.D., of Bowdoin College; Professor Arthur C. McGiffert, D.D., of Union Theological Seminary; Professor Hinckley G. Mitchell, D.D., of Boston University; and Professor George F.

Moore, D.D., of the Andover Theological Seminary. The evening lecturers from abroad were Rev. John W. Chadwick, A.M., of Brooklyn, N.Y.; and Dean Theodore F. Wright, Ph.D., of the New Church Theological School of Cambridge. The attendance of registered students was 105. Four of these were students of theology. Eighty-nine were ordained ministers. Of this latter number, 27 were connected with orthodox Congregational churches, 17 with Unitarians, 16 with Episcopalian, 14 with Universalist, 5 with Baptist, and 3 with Presbyterian. Seventeen states and the District of Columbia were represented. Divided according to age, so far as this was known, 19 were between twenty and thirty, 54 between thirty and forty, 20 between forty and fifty, and 9 above fifty. The youngest member of the School was twenty years old, the oldest seventy-eight. A collation was given which proved a pleasant feature of the occasion. The best of feeling seemed to prevail among all present.

I add in a tabular form a statement of the instruction given in the School during the last year, and of the attendance on the several courses. In this table are named courses which were not given last year, but which are given in alternate years or occasionally; as the work of one year cannot be fairly judged unless it is seen in relation to that of the School as a whole. A statement of the lectures given in the Summer School is added.

## COURSES OF INSTRUCTION, 1898-99.

### OLD TESTAMENT.

Professor LYON. — Hebrew. — Mitchell's Hebrew Lessons. Explanation of parts of Genesis and of the Psalm-book. Three hours. 3 Div., 2 Col.

Professor TOY. — Hebrew (second course). — Interpretation of parts of the Prophets and Poetical Books. Text-criticism. Two hours. 2 Div.

Professor LYON. — Jewish Aramaic. Kautzsch's *Biblisch-Aramäische Grammatik*. — Interpretation of parts of Ezra, Daniel, and the Targums. Two hours.

Professor LYON. — History of Israel, political and social, till the death of Herod the Great. Text-books, lectures, and theses. Three hours.  
2 Div., 57 Col., 2 Sci.

Professor TOY. — History of pre-Christian Hebrew Literature. Two hours.  
3 Div., 3 Col., 2 Sp., 1 Law.

Professor TOY. — History of the Hebrew Religion, with comparison of other Semitic religions. Two hours. 5 Div.

Professor LYON. — Assyrian. Lyon's Assyrian Manual. Delitzsch's Assyrian Grammar. Abel and Winckler's *Keilschrifttexte*. Two hours.

Professor LYON. — Assyrian (second course). — Delitzsch's Assyrian Grammar. The Chaldean Epic. Letters and Commercial Documents. Two hours.

Research courses. The instructors arrange and supervise for any properly prepared student a line of special study on such topic as may be agreed on.

#### NEW TESTAMENT.

Professor THAYER. — New Testament Times. — The political, social, moral, and religious condition of the world when Christ appeared. Omitted in 1898-99.

Professor THAYER. — New Testament Introduction. — The origin, contents, and history of the New Testament writings, together with the formation of the Canon. Omitted in 1898-99.

Asst. Professor ROPES. — Preparatory Course. — General topics (including the characteristics of New Testament Greek and the elements of textual criticism); exegetical work begun. One and a half hours. 4 Div.

Asst. Professor ROPES. — The Teaching of Jesus as contained in the Parables.

Asst. Professor ROPES. — The Synoptic Gospels, with special reference to the Synoptic Problem. One and a half hours. 4 Div.

Professor THAYER. — The Gospel and Epistles of John. Omitted in 1898-99.

Asst. Professor ROPES. — The Apostolic Age. — Study of the Acts of the Apostles.

Professor THAYER. — Outline lectures of the life of Paul. — Study of the Four Great Epistles. Omitted in 1898-99.

Asst. Professor ROPES. — The Minor Pauline Epistles. Two hours. 2 Div.

Asst. Professor ROPES. — The Pastoral Epistles.

Professor THAYER. — The Epistle to the Hebrews. Omitted in 1888-99.

Asst. Professor ROPES. — The Catholic Epistles. One hour. 1 Div.

Asst. Professor ROPES. — The Apocalyptic literature, with special study of the Revelation of John. One and a half hours. 2 Div.

Professor THAYER. — Biblical Interpretation. — Its history, methods, principles, and their application in the study of difficult and debated New Testament passages. Omitted in 1898-99.

Professor THAYER. — Biblical Theology of the New Testament, centring upon the doctrines of sin and redemption.

Professor THAYER. — History of the English Bible, with detailed study of the Revised New Testament. Omitted in 1898-99.

Professor THAYER. — Modern Lives of Christ. Omitted in 1898-99.

Professor THAYER. — Biblical Geography and Archaeology. Omitted in 1898-99.

Professor THAYER. — Selections from the Septuagint, with special reference to the use made of the Old Testament in the New. Omitted in 1898-99.

Professor THAYER. — Selections from Greek and Latin writers of special interest to students of the New Testament. Omitted in 1898-99.



For example :—

- a. Plutarch on the Delay of the Deity in the punishment of the wicked.
- b. Philo's Legatio ad Gaium and In Flaccum.
- c. Josephus against Apion.
- d. Selections from the Apocrypha of the Old Testament and of the New.
- e. Selections relating to the early history of the Canon.
- f. The Octavius of Minucius Felix, the Apologeticus of Tertullian, the correspondence of Pliny and Trajan.

Professor LYON. — Classical Aramaic (Syriac). Roediger's Chrestomathia Syriaca, ed 3. The Peshitto version of the New Testament. Two hours.

Professor THAYER. — Advanced study and research on such topics as the antecedents and aims of individual students may render advisable. Omitted in 1898-99.

The New Testament Conference meets on the second and fourth Monday evenings of every month to hear and discuss papers upon topics relating to the New Testament. Omitted in 1898-99.

#### CHURCH HISTORY.

Asst. Professor PLATNER. — History of the Early Church, with special reference to the patristic literature. Two hours. 9 Div., 2 Col.

Professor EMERTON. — The Mediaeval Church. — Formations of national churches in the Germanic states; establishment of the mediaeval papacy and its development to be the controlling force in European affairs; the Holy Roman Empire. Two hours. 3 Div., 10 Gr., 6 Col., 1 Sp.

Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent, 1350-1563. Two hours. Omitted in 1898-99.

Asst. Professor PLATNER. — History of the Church since the Reformation. Two hours. 2 Col.

Professor EMERTON. — History of Christian Thought, considered in its relation to the prevailing philosophy of each period from the earliest time to the eighteenth century. Two hours. 5 Div.

Professor EMERTON. — Selected topics from the Canon Law, with reference also to the principles of Protestant Church Law.

Asst. Professor PLATNER. — Ecclesiastical Documents (A). In 1898-99, The Apostolic Fathers. One hour. 1 Div.

Asst. Professor PLATNER. — Ecclesiastical Documents (B). In 1898-99, The Papacy from Pius IV to Leo XIII.

Asst. Professor PLATNER. — Symbolics.

Professor EMERTON. — Advanced study and research. Church and State. Two hours. 2 Div., 3 Gr.

## SOCIAL QUESTIONS.

Professor PEABODY. — The Ethics of the Social Questions. — The modern social questions: Charity, the Family, Temperance, and various phases of the Labor question in the light of ethical theory. — Lectures, special researches, and required reading. Omitted in 1898-99.

Professor PEABODY. — Sociological Seminary. Omitted in 1898-99.

## COMPARATIVE STUDY OF RELIGIONS.

Professor EVERETT. — Comparative Study of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. Two hours. 5 Div., 4 Gr., 5 Col.

## THEOLOGY.

Professor EVERETT. — The Psychological Elements of Religious Faith. One hour. 7 Div., 3 Gr., 5 Col., 1 Sp.

Professor EVERETT. — Systematic Theology. Theism and the special content of Christian faith. An elaborate essay on some theological subject is expected from each student taking this course. Three hours.

7 Div., 1 Gr., 4 Col.

Professor EVERETT. — Theological Seminary. — Subject for the year: Study of Fichte, with special reference to the philosophy of religion. Two hours.

4 Div., 2 Gr.

## HOMILETICS AND PASTORAL CARE.

Asst. Professor HALE. — The structure and analysis of sermons. General exercise. One hour. 2 Div.

Asst. Professor HALE. — Each student writes five or six sermons during the year, three of which are preached before the two upper classes and criticised by students and instructor; the rest are criticised privately, both as to composition and delivery, in preparation for the public preaching named below. This course may be taken twice. One hour. 10 Div.

Professor PEABODY. — The Minister as Pastor, and the history of Christian worship. Omitted in 1898-99, to be given in 1899-1900.

Professor PEABODY. — The Minister as Preacher, and the history of Christian preaching. Omitted in 1898-99.

Asst. Professor HALE. — The Minister as Organizer and Director of Church Activities. One hour. 6 Div.

Asst. Professor HALE. — The Minister as Pastor and as Preacher. One hour. 6 Div.

## ELOCUTION.

Dr. CURRY. — Vocal training. 10 Div.

## GENERAL EXERCISES.

Evening Prayers, conducted by officers and students.

Worship and Preaching conducted usually by students in the Chapel of the School. Open to the public.

Meetings for Religious Conference, conducted usually by students.

## SUMMER SCHOOL OF THEOLOGY.

## LECTURES ON THEOLOGY

## THE IDEAL ELEMENTS IN RELIGION.

Professor EVERETT. — Religion in its making. — Superstition. — Positive religion embodying the ideals of truth, goodness, and beauty.

## THE DOCTRINE OF GOD.

Professor CLARKE. — The practical argument for the Being of God. — Divine Personality. — The relation between God and Man. — The moral effect of the Doctrine of God.

## THE TRANSFORMATION OF HUMAN CHARACTER UNDER DIVINE INFLUENCE.

President HYDE. — Law. The control of appetite by the social standard. — Grace. Redemption from sin by personal sympathy. — Love. Sanctification of life by the spirit of service.

## ETHICS AND RELIGION.

Professor PALMER. — The affinities of ethics and religion. — The contrasts of ethics and religion. — The completed life.

## LECTURES ON THE OLD TESTAMENT.

## THE HISTORY OF EARLY ISRAELITISH INSTITUTIONS.

Professor TOY. — Offerings and feasts. — The priesthood. — Sabbath and circumcision. — Relation of these institutions to the moral life of the people.

## PROPHETISM IN ISRAEL BEFORE THE EXILE.

Professor MITCHELL. — The beginnings of prophecy. — Amos and Hosea. — The "false" prophets.

## GENESIS I-XI AND BABYLONIAN PARALLELS.

Professor LYON. — Creation and Eden. — The Patriarchs before the Deluge. — The Deluge. — Nimrod and the Tower of Babel.

THE METHOD OF HISTORICAL INVESTIGATION AS APPLIED TO THE  
OLD TESTAMENT.

Professor MOORE. — The sources. The exact tenor of the testimony: Exegesis and text criticism. — Admissibility of the testimony: Genuineness, integrity, age; recovery of sources. — Value of the testimony: Credibility, completeness, accuracy; comparison with other evidence. — Import of the testimony: Interpretation of different kinds of evidence; combination and construction.

## LECTURES ON CHURCH HISTORY.

## THE DEVELOPMENT FROM PRIMITIVE TO CATHOLIC CHRISTIANITY.

- Professor PLATNER. — Jewish and Graeco-Roman life and thought at the beginning of the Christian Era.
- Professor ROPES. — Jewish primitive Christianity. — Gentile primitive Christianity.
- Professor PLATNER. — The ancient Catholic church.
- Professor ALLEN. — Eastern theology, Alexandria and Antioch. — Athanasius. — Western theology before Augustine. — Augustine.
- Professor MCGIFFERT. — The Apostles' Creed. — Preparation for the Nicene theology. — The Nicene Creed. — The Chalcedonian Christology. — The Ecumenical Council. — The Sacraments.
- Professor PLATNER. — The hierarchy.

## EVENING LECTURES.

- Professor FRANCKE. — Dürer's Biblical illustrations. Illustrated with the stereopticon.
- Mr. CHADWICK. — The anti-slavery preachers.
- Professor NORTON. — The Abbey of Cluny, and the life of its inmates.
- Dean WRIGHT. — Jerusalem. Illustrated with the stereopticon.
- Doctor GORDON. — The significance of the ideal.
- Professor ROYCE. — The evolution of conscience.
- Professor PEABODY. — Erasmus.

During the last year students were allowed for the first time to reckon as a half-course the instruction in Elocution. The recognition thus given to this department has resulted in a more regular attendance and more careful practice on the part of students. It is not that the men needed this spur to their interest, but work which does not count is always liable to be crowded out by the pressure of that which does.

The opening lecture of the year was given by Professor Toy. His topic was, "The method of studying the Ethics of the New Testament.

Professors Thayer and Peabody were absent during the year. As there is an Assistant Professor in the department of the New Testament and in that of Homiletics it was not found necessary to make especial arrangements for carrying on their work.

During the year from October 1, 1898, to September 30, 1899, there were added to the Divinity Library 399 volumes and 17 pamphlets by purchase, and 478 volumes and 371 pamphlets by gift.



October 1, 1899, there were in the Library 29,547 volumes and 6,610 pamphlets. During the year there were 584 titles catalogued in the author catalogue and 210 titles in the subject catalogue. There were borrowed from the stack for home use 1,403 volumes; from the stack for hall use, 520 volumes; from the reserved books for over night use, 687 volumes. In September of this year the School received from "The Society for Promoting Theological Education," the large gift of \$3,535.71 for the purchase of books and administration of the Library. The generous bequest by Miss Charlotte Maria Haven of \$5,000, the income of which is to be used primarily for the purchase of books for the Library should have been mentioned in my report of last year. I did not however learn of the fact till it was too late to make mention of it.

C. C. EVERETT, *Dean*.

## THE LAW SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor of presenting my report upon the Law School for the academic year 1898–99.

The table on pages 172, 173 gives the courses of study and instruction during the year, the text-books used, the number of exercises per week in each course, and the number of students who offered themselves for examination in each course at the end of the year.

During the twelve months from October 1, 1898, to October, 1899, 6,072 bound volumes and 881 pamphlets were added to the library. The library contained, October 1, 1899, about 50,400 volumes and 6,100 pamphlets.

The table on the next page exhibits the growth of the School, during the last thirty years, in the number of students, the number and percentage of college graduates, and in the number of colleges represented by their graduates. The figures for the current year will be slightly increased by later entries.

The number of non-graduates, 56, is somewhat misleading. Thirty-two of these are Harvard College Seniors, on leave of absence and registered in the Law School, some of whom have completed the full course required for the degree of A.B., and none of whom lacks more than a course and a half of the eighteen courses required for graduation. If these 32 seniors be transferred to the College Graduate column, we have 589 graduates, and the percentage of college graduates rises from 91 to 96. It is an interesting fact that the number of graduates in the School this year from Yale, Dartmouth, and Brown, 114, exceeds by one the total number of students in the School at the corresponding time of the year 1872–73.

Year.	Whole No. of Students.	Total of College Graduates.	Harvard Gradu- ates.	Graduates of other Colleges.	Non- Gradu- ates.	Per cent. of College Graduates.	No. of Col- leges rep- resented.
1870-71	165	77	27	50	88	47	27
1871-72	138	70	34	36	68	51	25
1872-73	117	66	34	32	51	56	25
1873-74	141	86	49	37	55	61	25
1874-75	144	82	63	19	62	57	18
1875-76	173	93	60	33	80	54	25
1876-77	199	116	74	42	83	58	30
1877-78	196	121	80	41	75	62	30
1878-79	169	109	71	38	60	64	24
1879-80	177	118	90	28	59	66	20
1880-81	161	112	82	30	49	70	19
1881-82	161	99	66	33	62	61	22
1882-83	138	93	58	35	45	67	32
1883-84	150	105	75	30	45	70	25
1884-85	156	122	85	37	34	78	31
1885-86	158	122	83	39	36	77	29
1886-87	188	143	88	55	45	76	34
1887-88	225	158	102	56	67	70	32
1888-89	225	158	105	53	67	70	32
1889-90	262	189	122	67	73	72	41
1890-91	285	200	135	65	85	70	33
1891-92	370	257	140	117	113	69	48
1892-93	405	266	132	134	139	66	54
1893-94	367	279	129	150	88	76	56
1894-95	413	310	139	171	103	75	74
1895-96	475	380	171	209	95	80	82
1896-97	490	408	186	222	82	83	82
1897-98	551	490	229	261	61	89	77
1898-99	564	503	212	291	61	89	78
1899-00	613	557	236	321	56	91	67

Instructors.	Studies and Text-books.	Exercises per week.	Number of students examined.
<b>First Year.</b>			
Prof. Ames . . . . .	Contracts. Cases on Contracts: Langtoll, vol. 1, 2d ed., Williston, vol. 1 . . .	3	232
Prof. Gray . . . . .	Property. Gray's Cases on Property, vol. 1, 2 . . . . .	2	227
Prof. Smith . . . . .	Torts. Cases on Torts: Ames, vol. 1, 2d ed., Smith, vol. 2 . . . . .	2	232
Mr. Westengard . . . . .	Civil Procedure at Common Law. Ames's Cases on Pleading . . . . .	1	226
Prof. Beale . . . . .	Criminal Law and Procedure. Beale's Cases on Criminal Law . . . . .	2	229
Mr. Westengard } . . . . .			
<b>Second Year.</b>			
Prof. Wambaugh . . . . .	Agency. Wambaugh's Cases on Agency . . . . .	2	174
Prof. Williston . . . . .	Bankruptcy. No text-book . . . . .	1	7
Prof. Brannan . . . . .	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes . .	2	115
Prof. Beale . . . . .	Carriers. McClain's Cases on Carriers . . . . .	1	37
Prof. Wambaugh . . . . .	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts . . . . .	2	6
Prof. Beale . . . . .	Damages. Beale's Cases on Damages . . . . .	1	11
Prof. Thayer . . . . .	Evidence. Thayer's Cases on Evidence . . . . .	2	186
Prof. Wambaugh . . . . .	Insurance, Marine, Fire, and Life. No text-book . . . . .	2	15
Prof. Langdell . . . . .	Jurisdiction and Procedure in Equity. Langtoll's Cases in Equity Pleading . .	2	17
Prof. Smith . . . . .	Law of Persons. No text-book . . . . .	1	12
Mr. Dodge . . . . .	Property. Gray's Cases on Property, vol. 3, 4 . . . . .	2	171
Mr. Swift . . . . .	Sales of Personal Property. Williston's Cases on Sales . . . . .	2	33
Prof. Ames . . . . .	Trusts. Ames's Cases on Trusts (new edition) . . . . .	2	175



## Third Year.

Prof. Beale . . . . .	Conflict of Laws and International Law. No text-book . . . . .	2	24
Prof. Thayer . . . . .	Constitutional Law. Thayer's Cases on Constitutional Law . . . . .	3	89
Prof. Smith . . . . .	Corporations. Smith's Cases on Corporations . . . . .	2	137
Prof. Strobel . . . . .	International Law as administered by the Courts . . . . .	2	1
Prof. Langdell . . . . .	Jurisdiction and Procedure in Equity. No text-book . . . . .	2	23
Prof. Brannan . . . . .	Partnership. Ames's Cases on Partnership . . . . .	2	65
Prof. Gray . . . . .	Property. Gray's Cases on Property, vol. 5, 6 . . . . .	2	36
Prof. Ames . . . . .	Suretyship. Ames's Cases on Suretyship . . . . .	1	52
Prof. Wambaugh . . . . .	Agency. Wambaugh's Cases on Agency . . . . .	2	17
Prof. Williston . . . . .	Bankruptcy. No text-book . . . . .	1	31
Prof. Brannan . . . . .	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes . . . . .	2	51
Prof. Wambaugh . . . . .	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts . . . . .	2	19
Prof. Beale . . . . .	Damages. Beale's Cases on Damages . . . . .	1	40
Prof. Thayer . . . . .	Evidence. Thayer's Cases on Evidence . . . . .	2	2
Prof. Wambaugh . . . . .	Insurance, Marine, Fire, and Life. No text-book . . . . .	2	45
Prof. Langdell . . . . .	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading . . . . .	2	3
Prof. Smith . . . . .	Law of Persons. No text-book . . . . .	1	26
Mr. Dodge . . . . .	Property II. Gray's Cases on Property, vol. 3, 4 . . . . .	2	6
Mr. Swift . . . . .	Sales of Personal Property. Williston's Cases on Sales . . . . .	2	29
Prof. Ames . . . . .	Trusts. Ames's Cases on Trusts (new edition) . . . . .	2	7
Prof. Beale . . . . .	Carriers. McClain's Cases on Carriers . . . . .	1	34
Prof. Gray . . . . .	Comparative Jurisprudence. No text-book . . . . .	1	

The law examinations of last June demonstrated once more what had been proved in each of the five years preceding, namely, that the law work of Harvard Seniors, who had not completed their college work, was inferior not only to that of Harvard Graduates, but also to that of the School at large. Fortunately this deplorable experience will not be repeated after June, 1900, for by a recent vote of the Law Faculty the rule admitting as regular students 'persons qualified to enter the Senior Class of Harvard College' was abolished.

The increase in the new entries makes it improbable that the number of students will fall below 600 for some years to come. The Faculty has accordingly recommended that working plans and estimates for a substantial enlargement of Austin Hall be procured as soon as practicable, and that the work upon the new building begin next spring unless there should be a very considerable difference between the estimated cost of building at that time and the probable cost a year or two later. The expense of the new building will be met wholly from the surplus earnings of the School.

JAMES BARR AMES, *Dean.*

## THE MEDICAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — As Dean of the Medical Faculty, I have the honor to submit the following report upon the Medical School for the academic year 1898-99 : —

In 1896 the Faculty voted that in and after June, 1901, a candidate for admission to the Medical School must present a degree in Arts, Literature, Philosophy, Science or Medicine. This year the Faculty voted to strike out the words "or Medicine" in the above vote.

At the close of the last academic year Dr. Harrington withdrew from the department of Therapeutics and Pharmacology and accepted the position of Assistant Professor of Hygiene. The department thus left vacant was placed under the care of Dr. Franz Pfaff.

During a great part of the year the Committee on Medical Education was engaged in preparing for a radical change in the arrangement of the studies of the first two years. Subsequently these plans were carefully considered by this Committee in conjunction with the Committee on the Course of Study, and their joint report was approved by the Faculty. These changes will go into effect the coming year (1899-1900).

The percentage of Scholarship required for the Degree of Medicine *cum laude* has been raised by the lowering of the values of C. and D. in marking the examinations. The former now counts as 70% instead of 75%, and the latter as 55% instead of 60%.

The annual reception given by the Faculty to the Instructors of the School, the Officers of the Alumni Association, the Superintendents of the Hospitals at which clinical teaching is given, and the medical members of the governing bodies of the University was held on Wednesday evening, October 26, and was fully attended.

*Building.* — Several extensive changes have been made in the building to accommodate the large classes which must necessarily work at the same time in the different laboratories under the new system which has been adopted for the instruction of the students of the first and second year classes.

Lecture Room B, on the northwest corner of the third story, has been changed into a laboratory for the accommodation of the Patho-

logical and Bacteriological Departments during the first half-year, and of the Physiological Department during the second half. It has been fitted with desks for the accommodation of ninety students, each desk being supplied with separate gas and electric supply and a locker. Two large sinks with water supply and drainage have been placed in this room.

The Pathological demonstration room, in the third story of the Sears' Building, has also been converted into a laboratory by being fitted with similar desks to those placed in the new laboratory mentioned above. This laboratory also accommodates ninety students.

The room on the first floor which was occupied by the Harvard Coöperative Society, was vacated by the Society at the end of the year, and has now been changed into a students' smoking and lunch room.

*Physiology.*—The following investigations have been published :—

The coördination of the ventricles, by W. T. PORTER. *The American Journal of Physiology*, Vol. II, pp. 127–136.

On the course of impulse to and from the cat's bladder, by C. C. STEWART. *The American Journal of Physiology*, Vol. II, pp. 182–202.

Infarction in the heart, by W. BAUMGARTEN. *The American Journal of Physiology*, Vol. II, pp. 243–265.

The action of animal extracts, bacterial cultures, and culture filtrates on the mammalian heart muscle, by ALLEN CLEGHORN. *The American Journal of Physiology*, Vol. II, pp. 273–290.

The physiological action of extracts of the sympathetic ganglia, by ALLEN CLEGHORN. *The American Journal of Physiology*, Vol. II, pp. 471–482.

Studies in the contraction of smooth muscle, by R. S. WOODWORTH. *The American Journal of Physiology*, Vol. III, pp. 26–44.

The origin of fibrinogen, by ALBERT MATHEWS. *The American Journal of Physiology*, Vol. III, pp. 53–85.

The relation of the depressor nerve to the vaso-motor centre, by W. T. PORTER and H. G. BEYER. *The Journal of the Boston Society of Medical Sciences*, June 6, 1899.

There have also been published :—

Reform in medical education, by H. P. BOWDITCH. *Science*, December 30, 1898, and *The Boston Medical and Surgical Journal*, December 29, 1898.



The teaching of physiology in medical schools, by WILLIAM T. PORTER. *The Boston Medical and Surgical Journal*, December 29, 1898. Also issued as a separate pamphlet, by the University Press.

A card centralblatt of physiology, by W. T. PORTER. *Science*, September 15, 1899.

The results of a research on the vaso-motor nerves of the heart, by W. T. Porter and H. G. Beyer, and the final account of an investigation of the relation of the depressor nerve to the vasomotor centre, by W. T. Porter and H. G. Beyer, are now in press. Experiments by H. G. Beyer on the action of nicotine, and by A. Cleghorn and C. C. Stewart on inhibition time, are also ready for publication. The experiments of Dr. Cleghorn on the growth and muscular activity have been continued. Studies, not yet complete, have been made by W. T. Porter on the cause of fibrillar contraction; by A. Mathews and A. Cleghorn on the formation of alcohol; by H. Kennedy on the depressor nerve; by W. B. Cannon on cerebral pressure; and by P. H. Provandie on high oxygen pressures.

*Anatomy.*—At the last meeting of the Anatomical Association, in New York, Dr. Dwight made a preliminary communication on his remarkable collection of anomalous species, and besides this he has been engaged in some research work which has not yet been published. At the same meeting Dr. Dexter presented a paper on the morphology of the digestive tract of the cat, which subsequently appeared in the *Archiv für Anatomie und Entwicklungsgeschichte*. Dr. Tenney read a paper on flat foot before the Society of Medical Sciences, and Dr. Lothrop published a book (The Warren Prize essay) on the anatomy of the frontal sinuses, including an account of a new operation in this region. He received the Bullard Fellowship for the purpose of continuing work on the nasal fossa throughout the coming year.

*Histology and Embryology.*—The collection of preparations for class instruction has been very much increased, so that it comprises nearly 15,000 microscopical slides, and has been greatly improved by replacing older preparations with better ones. Of the two permanent collections for reference and research, the histological has gained little, owing to the impossibility of employing assistants; on the other hand, the embryological collection has made important gains, owing to the generosity of Mr. W. G. Chase and an anonymous friend; so that it now comprises complete series, thoroughly catalogued, of over two hundred and fifty carefully selected vertebrate embryos. This embryological collection is serving as the basis of several investigations, which are still under way. Many of the most instructive sections have been drawn and are now being engraved for Professor Minot's Manual of Embryology.

Professor Schaper has published the following papers : —

Die nervösen Elemente der Selachier-Retina. *Festschrift zum 70sten Geburtstag* von Prof. C. von Kupffer, 1899.

Bemerkung zur Structur der Kerne der Stäbchen-Sehzellen der Retina. *Anat. Anz.*, XV, 1899.

Zur Morphologie des Kleinhirns. *Verhandl. der Anat.*, Ges. zu Tübingen, 1899.

Noch einmal zur Structur der Kerne der Stäbchen-Sehzellen der Retina. *Anat. Anz.*, XVI, 1899.

Zur Histologie des Kleinhirns der Petromyzonten. *Anat. Anz.*, XVI, 1899.

*Bacteriology.* — Much time has been taken up by the necessary changes in the force of assistants and the procuring of new apparatus for the enlarged prescribed course to be given in the second year of the medical course instead of the first.

The new course requiring so much more time on the part of the assistants, made necessary the retirement of Dr. A. K. Stone and Dr. E. A. Darling, and the appointment of Drs. C. G. Page, F. P. Denny, and H. J. Perry to fill out the force necessary for the work.

Dr. H. C. Ernst, with a view of ascertaining the amount and kind of instruction given in this subject in other medical schools in different parts of the world, sent out a circular letter requesting information on the subject of about one hundred and seventy-five such institutions and received answers from about ninety of them. The general result showed that, until the new course spoken of above, this School furnished less opportunity for the student to acquire knowledge of the bacteria than almost any other where the subject is taught at all, and that it was almost alone in giving its instruction in the first year of the medical course, the great majority of schools treating it as a subject for the third, fourth, or even fifth year of medical study.

Dr. Ernst has also given much time to the preparation of a large number of lantern slides on Bacteriological subjects, the expense of the work being defrayed by a gift from Mr. John G. Wright, of Boston, for the purpose. There are now in the collection about seven hundred and fifty slides, and it is hoped that the number will be much increased during the coming year. The work will be facilitated by Dr. W. Sturgis Bigelow's gift of one of the new "Minot-Blake" microtomes, capable of cutting sections of one-half micron in thickness.

During the year Dr. A. K. Stone continued his work on the clumping reaction in tuberculosis, the results coming very slowly and not yet being ready for publication.

Dr. E. A. Darling completed an inquiry on observations on the sterilization of catgut. *Journal of the Boston Society of Medical Sciences*, Vol. IV, p. 269.

Dr. J. N. Coolidge carried out an investigation on the etiology of a rare case of general infection, the results of which are almost ready for publication.

Dr. F. P. Denny completed an investigation on a new spore-producing bacillus. *Journal of the Boston Society of Medical Sciences*, Vol. IV, p. 308. He is now engaged on a study of the phosphorescent bacilli.

Dr. C. G. Page has continued his studies of streptococci to be found in scarlet fever, some of which are embodied in a preliminary study of streptococci isolated from throat cultures of persons ill with scarlet fever. *Journal of the Boston Society of Medical Sciences*, Vol. IV, p. 323, and preliminary report on the diplococcus of scarlet fever (Class), *Journal of the Boston Society of Medical Sciences*, Vol. IV, p. 344.

Mr. J. G. Hubbard published an article on color-screens as applied to photomicrography, *Journal of the Boston Society of Medical Sciences*, Vol. IV, p. 297, part of the work for which was done in this laboratory.

Mr. J. G. Cunningham completed his work on an infectious disease attacking artificially reared trout, which will be published shortly.

*Chemistry.*—The instruction to the second class is essentially the same as last year. To the fourth year elective has been added a clinical course in the analysis of the gastric contents in disease, which is given by Dr. Hewes.

During the past year Dr. Hills has been engaged in an investigation of the proteids of the urine. A preliminary communication relative to the occurrence in the urine of globulins, proteoses, and peptones was published in the *Boston Medical and Surgical Journal*, August 10, 1899. The research will be continued during the coming year.

Dr. Hewes published the following paper as the result of work done in the laboratory:—

The examination of stained specimens of blood in its application to clinical work. *Boston Medical and Surgical Journal*, July 13 and 20, 1899.

*Experimental Pharmacology.* — Dr. F. Pfaff, with Dr. J. J. Putnam, finished the study of the urine of patients suffering from migrainous headaches and epilepsy. The results were published in the transactions of the Association of American Physicians, under the title: An experimental research indicating that paraxanthin poisoning is not the cause of epilepsy or migraine.

Dr. E. P. Joslin published the results of a research under the title: The influence of bile on metabolism. *Journal of the Boston Medical Society.*

Mr. M. P. O. Vejux-Tyrode published the results of an investigation under the title: Comparative action of green and crown strophanthus seeds. *American Journal of the Medical Sciences.*

*Pathology.* — The energies of the Pathological Department have been devoted during the past year chiefly to two lines of work.

The first, and in some respects the more important, was the preparation of lantern slides to illustrate the various pathological processes studied by the students in Pathology. Much was accomplished. Over seven hundred original microphotographs were made from stained preparations, and over two hundred copies from different standard works and monographs. The whole collection of lantern slides prepared from these microphotographs numbers 964. They are kept in the Warren Museum so as to be accessible to other departments that may wish to use them. The great advantage of them is, that the lecturer is enabled to demonstrate at once to a class of one hundred and fifty men what, under a microscope, can be shown to but one.

In connection with the lantern slides an illustrated card catalogue, carefully classified and indexed, has been prepared, so that the lantern slides wanted can be selected easily. It is possible that an interchange of lantern slides with pathological departments in other medical schools working along the same lines, can be arranged for later.

The second work of the department, still unfinished, has been the preparation of a monograph on the subject of Diphtheria, based on the bacteriological, and gross and histological study of over one hundred and seventy-five cases which have come to postmortem examination in the contagious service of the Boston City Hospital.

The following list shows the rest of the work which has come from the department during the year: —

The character of the cellular exudation in acute keratitis of the rabbit. By Dr. W. T. COUNCILMAN. *The Journal of the Boston Society of Medical Sciences*, January, 1899.



The growth and extension of carcinoma. By Dr. W. T. COUNCILMAN. Read at the annual meeting of the Massachusetts Medical Society, June 13, 1899.

Examples of the application of color screens to photomicrography. By Dr. J. H. WRIGHT. *The Journal of the Boston Society of Medical Sciences*, June, 1899.

Lantern slide demonstration of photographs of malarial parasites in the blood and tissues. By Dr. J. H. WRIGHT. Read at the annual meeting of the Massachusetts Medical Society.

Observations upon the elastic tissue of certain human arteries. By Dr. G. B. MAGRATH. *The Journal of the Boston Society of Medical Sciences*, December, 1898.

Immediate effects upon the spinal cord of fractures or dislocations of the vertebrae. By Dr. E. W. TAYLOR. *The Journal of the Boston Society of Medical Sciences*, 1899.

Miliary aneurism of the brain. By Dr. E. W. TAYLOR. *The Journal of the Boston Society of Medical Sciences*, April, 1899.

A non-vibratory bench for photomicrography. By W. R. BRINCKERHOFF, a second-year student. *The Journal of the Boston Society of Medical Sciences*, 1899.

*Comparative Pathology.*—The direction which the work in this department will eventually take will depend largely upon the means at its disposal. The cramped facilities at present afford opportunity for only a few advanced students at a time, and the few available places are kept filled. An elective course, comprising twenty-five lectures on general and special topics in Infectious Diseases was given during the second term.

From among the subjects dealt with during the past year, the following have been published:—

Notes on a tubercle bacillus having a low degree of virulence. *Journal of the Boston Society of Medical Sciences*, November, 1898.

Ueber einen unbeweglichen Hogcholera Bacillus. *Centralblatt f. Bakteriologie*, XXV (1899), p. 241.

The thermal deathpoint of tubercle bacilli in milk and some other fluids. *Journal of Experimental Medicine*, 1899, p. 217.

Some devices for the cultivation of anaërobic bacteria in fluid media. *Journal of the Boston Society of Medical Sciences*, June, 1899.

The etiology of Texas cattle fever with special reference to recent hypotheses concerning the transmission of malaria. (By invitation, N. Y. Academy of Medicine) *New York Medical Journal*, July 8, 1899.

The relation of dextrose to the production of toxin in bouillon cultures of the diphtheria bacillus. *Journal of Experimental Medicine*, 1899, Nos. 3 and 4.

The following were accidentally omitted from my report last year : —

A comparative study of bovine tubercle bacilli and of human bacilli from sputum. *Journal of Experimental Medicine*, 1898, Nos. 4 and 5.

A comparative study of the toxin production of diphtheria bacilli (with E. L. WALKER). Report of the State Board of Health for 1897.

The action of typhoid bacilli on milk and its probable relation to a second carbohydrate in that fluid. *Journal of the Boston Society of Medical Sciences*, June, 1898.

The toxin and antitoxin of tetanus. *Boston Medical and Surgical Journal*.

The toxin of diphtheria and its antitoxin. Published by the Massachusetts Medical Society.

*Surgery.*— In the Department of Surgery the course of instruction has been so changed as to give the student in his second year in the School a knowledge of general Surgery, reserving for his third year a study of special or regional Surgery. A prominent feature of the second year's studies in this department is the course on Surgical Pathology, conducted by Dr. E. H. Nichols. This is a laboratory course intended to prepare the student for an intelligent study of surgical diseases in the hospital wards later in his course, and is especially adapted for those who receive hospital appointments. It consists in a microscopical study of the acute infective inflammations, the reaction of ligatures and sutures, septic and aseptic, upon the tissues and the processes of repair in various tissues. The pathology of certain organs liable to surgical diseases is also studied.

During the last few years the nucleus of a fund for original research in Surgery has been accumulating. The object of this fund is to establish a "surgical laboratory" where problems in Surgery may be worked out by original investigators. An immense impetus has been given to this work by the munificent bequest of Caroline Croft, received this year, amounting to nearly one hundred thousand dollars, for the study more especially of the origin and cure of cancer. This subject is at present being investigated in the laboratory under the immediate charge of Dr. E. H. Nichols. Dr. Nichols is assisted in this work by Mr. E. A. Locke, of the fourth class, at the City Hospital, and by Dr. Robert B. Greenough and Mr. Oscar Richardson, of the fourth class, at the Massachusetts General Hospital. The etiology of cancer is the point to which attention is now being directed, and the work consists in the micro-

scopical examination of specimens of cancer, the study of the question of culture methods, and in experimental work. The laboratory enjoys the privilege of the active coöperation of Professor Councilman, and of Dr. J. H. Wright, director of the laboratory of the Massachusetts General Hospital, and also of Dr. W. F. Whitney, clinical pathologist of the Massachusetts General Hospital. As a part of this investigation Dr. Whitney is making a study of the geographical distribution of cancer in Massachusetts for the State Board of Health.

*Dermatology.*—During the year a voluntary course of practical instruction in the microscopical examination of the skin in its principal pathological conditions has been given by Drs. Bowen and Charles J. White, that students might become familiar with this important method of research. The ever-increasing role which parasitism is found to play in the etiology of affections of the skin makes a knowledge of such laboratory investigations a necessity in dermatological instruction. This course will be made a permanent feature of the fourth year in this department.

*Hygiene.*—During the year the laboratory was fitted throughout with new desks of special design, and was thoroughly equipped with apparatus for all ordinary research in Hygiene.

The examination of proprietary disinfectants referred to in the last preceding report was finished by Dr. Harrington with Dr. R. M. Pearce, and the results were published in the *Journal of the Boston Society of Medical Sciences* for March, 1899. These demonstrated the absolute unreliability of the most popular preparations in common use for the general purpose of sick-room disinfection, and the superior value of certain simple and comparatively inexpensive agents not sold under fancy names.

With Mr. Albert Moser, Dr. Harrington made an investigation of the nature of certain organisms concerned in the transformation of nitrogenous organic matter in water. The results are to be published during the current year.

The investigation of the action of water on composition water pipes was interrupted during the period of laboratory reconstruction and was not renewed for some months. It is now being pushed forward and will probably be completed before the end of the year.

*Museum.*—The work of labelling the specimens and indexing the catalogue was completed during the past year, and hereafter new specimens will be indexed and placed upon the shelves as soon as they are received.

Many of the cases have been entirely rearranged, in order to better systematize the collection and economize room, and whatever is not in constant use for teaching has been placed in the background.

Several large collections of lantern slides have been given by the teachers, and they have been so arranged that while they are preserved in the order in which they are most likely to be used by the donor, they can be readily found for use by anybody. It is hoped that all who have collections of this kind will eventually place them here.

Among the gifts of the year were the gift from Dr. Wm. S. Bigelow of fifty calculi, which were the first removed by litholapaxy by his father, the late Dr. Henry J. Bigelow, and the gift from Dr. W. W. Seymour of a collection of models and a manikin.

The Museum has been open daily during the School year to the students.

*Scholarships.* — In March, 1899, the John Thomson Taylor Scholarship, with an income of two hundred dollars, was founded by Mrs. Frederic D. Philip in memory of her brother, John Thomson Taylor, who died in 1889. He was a student of the Medical School from 1887 to 1889.

The Scholarships and Fellowships were awarded as follows : —

Barringer Scholarship, No. 1,	J. M. Connolly, A.M.,	3d Class.
Isaac Sweetser Scholarship,	J. H. Shannon, A.B.,	2d "
Claudius M. Jones "	R. Collins, A.B.,	3d "
Hilton "	R. F. Gibson,	2d "
Barringer " No. 2,	W. B. Cannon, A.M.,	3d "
Faculty "	G. C. Wilkins,	4th "
" "	F. W. Sleeper, A.M.,	2d "
" "	W. B. Stone,	4th "
" "	H. G. Wyer, A.B.,	3d "
Eveleth "	D. C. Greene, Jr., A.B.,	4th "
" "	E. L. Creesy, A.B.,	3d "
" "	H. L. Sanford, A.B.,	3d "
Alfred Hosmer Linder Scholarship,	F. T. Lord, A.B.,	3d "
Edward Wigglesworth "	H. B. Jackson, A.B.,	2d "
Charles B. Porter, "	B. W. Pond, A.B.,	2d "
Orlando W. Doe "	E. T. Easton,	4th "
Charles Pratt Strong "	C. D. Wilkins,	4th "
Foster Gratuity,	C. C. Simmons,	4th "
" "	P. S. McAdams, A.B.,	4th "
Cheever Scholarship (one half),	E. J. Davis, A.B.,	4th "
" " " "	J. W. Thomas,	4th "

The George Cheyne Shattuck Fellowship was awarded Dr. Mark W. Richardson for an investigation into the role played by bacteria, especially the typhoid bacillus, in the formation of biliary calculi.



The John Ware Fellowship was awarded Dr. Howard A. Lothrop for a study of the anatomy of the nasal fossae and accessory sinuses.

The Charles Eliot Ware Fellowship was awarded Mr. M. P. O. Vejux-Tyrode for a research to be conducted in the laboratory of pharmacology upon the metabolism of the isolated mammalian kidney and other scientific work.

The William H. Thorndike Prize was awarded Dr. J. W. Courtney. The subject of the essay was A Critical Study on Traumatic Cerebral Edema: its Pathology and Surgical Treatment.

The statistics of the School will be found in the following tables :—

## COURSES OF INSTRUCTION, 1898-99.

### FIRST YEAR.

Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER, Demonstrator BROOKS, Instructor TENNEY, Assistant LUND, Assistant LOTHROP, Assistant BLAKE, Assistant LORING, Assistant YOUNG. 160 students examined.

Physiology. — Professor H. P. BOWDITCH, Asst. Professor W. T. PORTER, Assistant KENNEDY, Assistant MATHEWS, Assistant CLEGHORN. 154 students examined.

Histology and Embryology. — Professor MINOT, Demonstrator SCHAPER, Assistant AMES, Assistant STUBBS, Assistant WOODS, Assistant ATKINSON. 146 students examined.

Physiological Chemistry. — Associate Professor HILLS, Assistant OGDEN, Assistant JOSLIN, Assistant WHITE. 145 students examined.

Bacteriology. — Professor ERNST, Assistant STONE, Assistant COOLIDGE, Assistant DARLING. 145 students examined.

### SECOND YEAR.

Advanced Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER. 123 students examined.

Pathology and Pathological Anatomy. — Professor COUNCILMAN, Asst. Professor MALLORY, Instructor TAYLOR, Instructor WRIGHT, Assistant NICHOLS, Assistant WENTWORTH, Assistant RICHARDSON, Assistant MAGRATH. 137 students examined.

Clinical Chemistry. — Professor WOOD, Assistant OGDEN, Assistant HEWES. 120 students examined.

Therapeutics. — Instructor PFAFF, Assistant JORDAN, Assistant BALCH. 134 students examined.

Theory and Practice. — Instructor CUTLER.

Clinical Medicine. — Associate Professor MASON, Instructor GANNETT, Instructor WITHINGTON, Instructor V. Y. BOWDITCH, Instructor SEARS, Instructor VICKERY, Assistant KNIGHT, Assistant MORSE.

Surgery. — Asst. Professor BURRELL, Instructor C. A. PORTER, Instructor MUNRO, Demonstrator NICHOLS, Assistant PAINTER.

## THIRD YEAR.

Theory and Practice of Medicine.—Professor FITZ.	126 students examined.
Obstetrics.—Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HIGGINS, Assistant NEWELL.	131 students examined.
Clinical Obstetrics.—Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HIGGINS, Assistant NEWELL.	
Dermatology.—Professor WHITE.	137 students examined.
Diseases of the Nervous System.—Professor PUTNAM.	127 students examined.
Diseases of Children.—Professor ROTCH, Instructor BUCKINGHAM, Assistant WENTWORTH, Assistant CRAIGIN, Instructor MCCOLLOM.	142 students examined.
Mental Diseases.—Instructor COWLES.	123 students examined.
Gynaecology.—Asst. Professor DAVENPORT, Instructor HAVEN, Assistant SWIFT, Assistant REYNOLDS.	125 students examined.
Surgery and Clinical Surgery.—Professor WARREN, Professor C. B. PORTER, Asst. Professor BURRELL, Asst. Professor M. H. RICHARDSON, Instructor WATSON, Instructor BEACH, Instructor HOMANS, Instructor GAY, Instructor MONKS, Assistant SCUDDER, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Instructor MUNRO, Assistant MUMFORD, Assistant DWIGHT.	127 students examined.
Clinical Medicine.—Professor SHATTUCK, Associate Professor MASON, Instructor WITHINGTON, Instructor V. Y. BOWDITCH.	

## FOURTH YEAR.

Clinical Surgery.—Professor C. B. PORTER, Asst. Professor BURRELL, Asst. Professor M. H. RICHARDSON, Assistant MONKS.	126 students examined.
Clinical Medicine.—Professor SHATTUCK, Associate Professor MASON, Instructor MCCOLLOM.	133 students examined.
Ophthalmology.—Professor WADSWORTH, Assistant STANDISH, Assistant CHENEY, Assistant JACK.	124 students examined.
Otology.—Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT.	122 students examined.
Laryngology.—Instructor DEBLOIS, Instructor FARLOW, Instructor COOLIDGE.	129 students examined.
Legal Medicine.—Professor DRAPER, Instructor E. W. DWIGHT.	123 students examined.
Syphilis.—Instructor POST	124 students examined.
Orthopedics.—Asst. Professor BRADFORD.	100 students examined.
Hygiene.—Asst. Professor HARRINGTON.	128 students examined.
Mental Diseases.—Instructor COWLES, Instructor LANE.	

*Fourth Year Electives.*

Ophthalmology. — Professor WADSWORTH, Assistant CHENEY, Assistant JACK.	STANDISH, Assistant 7 students examined.
Otology. — Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT.	7 students examined.
Dermatology. — Instructor BOWEN, Assistant C. J. WHITE.	62 students examined.
Diseases of the Nervous System. — Professor PUTNAM, Instructor WALTON, Instructor KNAPP.	14 students examined.
Gynaecology. — Asst. Professor C. M. GREEN.	17 students examined.
Operative Obstetrics. — Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HIGGINS, Assistant NEWELL.	41 students examined.
Operative Surgery. — Professor C. B. PORTER, Assistant MIXTER, Instructor MONKS, Assistant CONANT, Assistant SCUDDER.	94 students examined.
Bacteriology. — Professor ERNST, Assistant STONE, Assistant COOLIDGE, Assistant DARLING.	20 students examined.
Orthopedics. — Asst. Professor BRADFORD.	25 students examined.
Clinical Microscopy. — Curator WHITNEY.	4 students examined.
Clinical Chemistry. — Professor WOOD, Assistant HEWES.	7 students examined.
Anatomy. — Asst. Professor DEXTER.	10 students examined.
Embryology. — Professor MINOT, Demonstrator SCHAPER.	1 student examined.
Hygiene. — Asst. Professor HARRINGTON.	3 students examined.
Physiological Chemistry. — Instructor PFAFF.	3 students examined.
Comparative Etiology of Infectious Diseases. — Professor SMITH.	2 students examined.

TABLE I. — GENERAL STATISTICS OF THE SCHOOL.

## EXAMINATIONS FOR ADMISSION.

		Physics.	Latin.	Eng-lish.	Elec-tive 1.	Elec-tive 2.	Gen. Chem.	Qual. Analysis.	
1898.	{ June	{ Offered . . . . .	74	78	76	70	80	62	47
		{ Conditioned . . . .	21	12	16	9	13	13	14
	{ Sept.	{ Offered . . . . .	44	37	38	32	35	45	29
		{ Conditioned . . . .	9	11	12	6	5	6	5

New matriculants . . . 157 { Graduates in Medicine . . . . . 7  
 Undergraduates . . . . . 150

Of these 42.67 % presented a degree in Letters, Science, or Medicine.

The whole number of students in attendance : —

In courses for graduates . . . . .	50
Fourth Class . . . . .	108
Third Class . . . . .	116
Second Class . . . . .	143
First Class . . . . .	165
Total . . . . .	582

	4 yrs. Course.
Applicants for Degree . . . . .	144
Rejected . . . . .	34
Graduated . . . . .	110

Of the 110 students who received the degree of Doctor of Medicine, 47 received the degree *cum laude*.

	SUMMER COURSES.					GRADUATE COURSES.				
	1895.	1896.	1897.	1898.	1899.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Courses taken . . .	110	116	130	118	142	95	108	175	114	134
Students . . . . .	89	100	110	107	116	50	56	75	60	50
Receipts . . . . .	\$2725	\$2972	\$3129	\$3360	\$3895	\$2813.33	\$2520	\$3810	\$3780	\$2861.25



TABLE II. — FINAL EXAMINATIONS.

FIRST CLASS.										SECOND CLASS.													
Histology.			Bacteriology.			Physiology.			Chemistry.			Anatomy.			Path. Anatomy.			Adv. Anatomy.			Therapeutics.		
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
1895	Passed	139	127	20	119	116	114	25	114	38	82	11	67	86	9	41	58	41					
	Rejected	30	32	40	48	29	38		29		10	33	33	9	9	41	41						
	Total	169	159		164		152				92	100	100	95		99	99						
1896	Passed	142	145	6	136	132	122	24	122	39	123	15	100	110	26	68	112	38					
	Rejected	15	9	27	40	23	39		23		22	23	23	15	38	68	68						
	Total	157	154		163		161				145	145	154	148		180	180						
1897	Passed	136	111	22	136	113	126	22	126	36	123	12	36	110	22	64	108	37					
	Rejected	11	31	24	47	30	36		30		17	12	36	31	22	64	64						
	Total	147	142		160		162				140	140	140	141		172	172						
1898	Passed	129	117	18	119	121	120	16	120	24	120	12	107	99	26	41	111	27					
	Rejected	13	27	24	40	25	24		25		16	12	50	35	26	41	41						
	Total	142	144		143		144				136	136	157	134		152	152						
1899	Passed	124	118	18	117	117	115	25	115	39	113	6	109	105	14	51	83	38					
	Rejected	22	27	28	43	27	39		27		7	20	20	18	14	51	51						
	Total	146	145		145		154				120	137	137	123		134	134						

TABLE II. — FINAL EXAMINATIONS, CONTINUED.

THIRD CLASS.										FOURTH CLASS.																						
Theory and Practice.	Surgery.		Obstetrics.		Diseases of Children.		Dermatology.		Gynaecology.		Nervous Diseases.		Mental Disease.		Clinical Medicine.		Clinical Surgery.		Ophthalmology.		Otolaryngology.		Laryngology.		Legal Medicine.		Syphilis.		Orthopedics.		Hygiene.	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
1885 Passed Rejected Total	85	94	88	88	1	49	57	71	81	0	15	32	11	5	31								7	12	1	8						
	4	10	9	31	26	12	19	7	11	0	7	32	10	0	5							1	12	1	8							
	89	104	119				61	81	81		22	16										8			13							
1886 Passed Rejected Total	95	83	83	62	31	82	80	76	87	2	97	4	20	22	2	100	2	2	72	91	2	94	0	93	0	95						
	6	12	8	28	9	21	9	17	18		4	2	20	22		2	2	20	22	2	2	0	0	0	0	0	0	0	0	0		
	101	95	91	90		103	89	93	89		101	102		92	93	102		92	92	93	94	94	93	93	95	92	92	92	92	92		
1887 Passed Rejected Total	128	122	123	66	125	125	136	131	136	0	89	7	26	26	2	82	12	12	72	91	2	94	2	93	3	93						
	14	19	13	85	8	22	15	6	17	11	7	10	11	0	11	11	12	26	26	2	2	2	2	3	3	1	1	1	1	1		
	142	141	141	151	144	147	144	148	136		96	93	95	93	93	93	93	95	93	93	93	96	96	96	96	94	90	90	90	90		
1888 Passed Rejected Total	126	128	118	154	14	115	121	124	128	3	122	130	115	132	1	130	3	115	115	132	1	122	11	134	139	139						
	10	9	13	25	10	28	19	7	5	4	14	10	19	14	2	5	3	19	14	2	2	15	11	4	3	2	1	0	0	0		
	136	137	136	179	131	143	131	131	132		136	135	134	134	134	135	135	134	134	134	134	137	137	138	141	141	127	127	133	133	133	
1889 Passed Rejected Total	118	119	110	93	116	116	118	118	105	7	117	119	104	120	2	119	5	104	120	120	2	129	0	123	123	123						
	8	8	21	49	34	21	15	7	18	14	16	12	20	16	2	7	5	20	16	2	2	0	0	0	0	1	1	0	0	0		
	126	127	131	142	137	125	125	127	123		133	126	124	124	122	126	126	124	124	122	122	129	129	123	123	124	100	100	100	128	128	

TABLE II. — FINAL EXAMINATIONS, CONTINUED.

FOURTH CLASS.—ELECTIVES.																																		
	Ophthalmology.		Otology.		Gynaecology.		Dermatology.		Diseases of Nervous System.		Operative Obstetrics.		Operative Surgery.		Bacteriology.		Orthopedics.		Clinical Microscopy.		Clinical Chemistry.		Anatomy.		Physiology.		Embryology.		Hygiene.		Physiology.		Chemistry.	
	%		%		%		%		%		%		%		%		%		%		%		%		%		%		%		%		%	
1895	Passed	1	0	3	0	16	0	9	2	13	7	2	22	23	3	11																		
	Rejected	0		0		0		2	1	50	1	7	9	26	11																			
	Total	1		3		16		11	3	14	9	26	26	26	11																			
1896	Passed																																	
	Rejected			2	0	64	5	17	2	7	12	58	20	0	1	5																		
	Total			2		69		19		8	61	61	20	0	1	21																		
1897	Passed	5		1	0	23	5	6	0	6	0	55	46	3	6	45	2	4	0	4	0	0												
	Rejected	0		0		5	15	0	0	0	0	23	31	3	46	1	4	0	0	0	0	0	6	0										
	Total	5		1		33		6		6		78	49	6	46	46		4		4				6										
1898	Passed	5		1	19	45	9	45	16	21	19	71	70	1	24	10	10	0	4	0	0	17	11	11	0	0	4	0						
	Rejected	0		0	3	14	5	9	5	8	10	8	10	1	3	11	0	0	0	0	2	0	0	0	0	0	4	0						
	Total	5		1	22	54		54		26	79	71	21	2	27	21	10	0	4	0	19	11	11	11	0	4	4							
1899	Passed	6		7	16	57	8	57	8	9	35	88	88	6	18	25	0	4	0	4	0	7	10	10	0	0	1	0	3	0	3	0	2	
	Rejected	1		0	1	6		5		5	3	7	6	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	7		7	17	62		62		14	41	94	94	12	20	26		4		4		7	10	10	0	0	1	1	3	0	3	0	2	

In previous reports allusion has repeatedly been made to the great need of the School for an increase in the space devoted to the several laboratories, while at the same time attention has been called to the overcrowded condition of the lecture-rooms. The changes which have been made in the course of instruction in the first two years have absolutely necessitated the increase in laboratory accommodations, and one of the lecture-rooms has had to be converted into a laboratory. The result is that, while the amount of space in the laboratories still remains wholly insufficient for the demands of the School, a serious difficulty has arisen in finding lecture-rooms for all the lectures which must daily be given.

The sale of the old medical school building, on North Grove Street, to the Massachusetts General Hospital will necessitate the providing of accommodations another year for some of the exercises held there. Steps should at once be taken and money obtained for the purchase of a site and the erection of buildings for the immediate use of the School.

WILLIAM L. RICHARDSON, *Dean*.



## THE DENTAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to submit the following report upon the Dental School for the academic year 1898-99:—

One hundred and thirty-three students were in attendance throughout the year. One hundred and thirty-nine students matriculated and six withdrew. Eight of the students were subjects of foreign countries and their residences were distributed as follows:—

New Brunswick . . . . .	3	Germany . . . . .	1
Canada . . . . .	1	Australia . . . . .	1
Sweden . . . . .	1	Asia . . . . .	1

In June, fifty-two students applied for the degree. Thirty-two were successful in fulfilling the requirements, and four received their degree out of course, making the total number of the graduating class thirty-six.

The courses of instruction during the year have been as follows:—

- Anatomy.—Professor DWIGHT. 60 lectures.
- Anatomy.—Assistant Professor DEXTER. 46 lectures.
- Anatomy Dissection.—4 weeks.
- Chemistry.—Associate Professor HILLS. 64 lectures.
- Chemistry, laboratory exercises in sections.—Mr. BACON. 192 hours.
- Histology.—Professor MINOT. 17 lectures.
- Histology, laboratory exercises in sections.—Dr. SCHAPER and Dr. AMES. 240 hours.
- Physiology.—Professor BOWDITCH. 96 lectures, 32 recitations, and 15 conferences.
- Physiology, experimental, in sections.—Dr. PORTER. 96 hours.
- Bacteriology.—Professor ERNST. 20 lectures.
- Crown and Bridge Work and Metallurgy.—Dr. COOKE. 32 lectures.
- Neurology.—Dr. TAYLOR. 4 lectures.
- Materia Medica and Therapeutics.—Professor BRIGGS. 32 lectures.
- Materia Medica and Therapeutics.—Dr. WYLLIE. 32 recitations.
- Oral Anatomy and Physiology.—Assistant Professor STANTON. 32 lectures.
- Dental Pathology.—Professor BRACKETT. 32 lectures.
- Surgical Pathology.—Dr. MONKS. 10 lectures.
- Mechanical Dentistry and Orthodontia.—Professor SMITH. 32 lectures.
- Orthodontia.—Professor SMITH. 32 clinics.
- Mechanical Dentistry.—Dr. DICKINSON. 8 clinical lectures.

Mechanical Dentistry.—Dr. STODDARD. 16 lectures and demonstrations.  
 Mechanical Dentistry, laboratory, Juniors.—Assistant Demonstrator Dr. McMEEKIN; Instructor Dr. CHASE. 544 hours.  
 Mechanical Dentistry, laboratory, Seniors.—Demonstrator Dr. MORIARTY; Assistant Demonstrator, Dr. HAYDEN; Instructors, Drs. CROSS, ELDRED, BURNHAM, HALEY, BIXBY. 496 hours.  
 Practical Dentistry.—Dr. UPHAM. 14 lectures.  
 Operative Dentistry and Dental Jurisprudence.—Dr. CLAPP. 12 lectures.  
 Operative Dentistry.—Professor FILLEBROWN. 32 lectures.  
 Operative Dentistry.—Dr. POTTER. 32 lectures.  
 Operative Dentistry.—Dr. WERNER. 13 lectures and demonstrations.  
 Operative Dentistry, infirmary, Juniors.—Assistant Demonstrator Dr. FARINGTON; Instructors, Dr. WHITE and Dr. DICKINSON. 448 hours.  
 Operative Dentistry, infirmary, Seniors.—Demonstrator Dr. PAUL; Instructors, Drs. BLAISDELL, TAFT, EDDY, BRADLEY, BOARDMAN. 624 hours.  
 Extracting and Anaesthesia (Demonstrations).—Dr. WYLLIE. 32 afternoons.

The work done in the School during the year is shown in the following table:—

#### OPERATIVE DEPARTMENT.

Surgical clinics by Professor FILLEBROWN.

Necrosis . . . . .	Number of cases operated upon	4
Abscess . . . . .	" " " "	16
Antrum Disease . . . . .	" " " "	2
Staphylorrhaphy . . . . .	" " " "	2
Epulis . . . . .	" " " "	3
Uranoplasty . . . . .	" " " "	3
Hare Lip . . . . .	" " " "	2
Nostril . . . . .	" " " "	1

#### INFIRMARY.

Number of patients treated for diseases of the teeth . . . . .	6,232
Total number of Operations performed . . . . .	18,086

#### MECHANICAL DEPARTMENT.

##### SERVICE TO PATIENTS.

Sets of artificial teeth . . . . .	389
Sets of artificial teeth repaired . . . . .	89
Splints for fractured jaws . . . . .	81
Splints for cleft palate operations . . . . .	2
Obturator and appliances for cleft palates . . . . .	4
Artificial noses . . . . .	2
Cases of Irregularity treated and corrected . . . . .	94
Orthodontia appliances . . . . .	192

Under direction of Drs. COOKE and STODDARD:—

Crowns and caps . . . . .	91
Pieces of bridge work . . . . .	26
Porcelain tips . . . . .	1
Carved teeth . . . . .	2
Pieces of bridge work repaired . . . . .	3

MECHANICAL LABORATORY—PRACTICE WORK.

Specimen crowns and bridges . . . . .	114
“ porcelain tips . . . . .	8
“ inlays . . . . .	65
Carved teeth models . . . . .	46
Sets of artificial teeth . . . . .	365
Splints for fractured jaws . . . . .	22
Orthodontia appliances . . . . .	31
Artificial noses . . . . .	1

In October, 1898, the Faculty voted to recommend for the degree *cum laude* students who attend the School for three years, and pass the examinations with distinguished excellence.

Dr. Stoddard, who had served the School as Instructor in Mechanical Dentistry since 1891, was appointed Lecturer in Mechanical Dentistry and gave a series of didactic lectures on the relation and adaptation of porcelain products in the restoration of natural teeth when impaired by caries or wholly lost by disease.

Dr. Wyllie, in addition to his regular work as Instructor in Extracting and Anaesthesia, conducted once a week a recitation in *Materia Medica*. These recitations were supplementary to the lectures of Professor Briggs and treated of drugs from the standpoint of the pharmacist.

In October, 1898, Dr. J. D. Dickinson was appointed Clinical Instructor in Mechanical Dentistry. Dr. Dickinson met the Senior Class in small sections in his private laboratory, and gave valuable clinical instruction along special lines in prosthetic work.

By invitation of the Faculty, Dr. Sprague gave several valuable clinics in Operative Dentistry to the Senior Class.

The increase in the number of students made it necessary to increase the staff of teachers by the appointment of five additional Instructors in Operative Dentistry and two in Mechanical Dentistry. We were fortunate in securing for the Operative Department trained teachers who had served the School before; and, for the Mechanical Department, men who were graduates of some years' standing, and who brought to their work of teaching the experience gained in practice.

The library of the School was opened during the latter part of the year, and supplied a want felt by teachers as well as by students.

In March, 1899, the government of the Netherlands passed an act officially recognizing the diploma of this School. This recognition enables men holding our degree to practice their profession in that country without further examination.

The resources of the School were materially increased during the year by the bequest of ten thousand dollars from the late Henry Clark Warren. It was during the latter years of Mr. Warren's life, and through the influence of Dr. Dwight M. Clapp, that he not only became interested in the work of the School, but emphasized that interest at different times with substantial gifts of money. His help to the School during this period was known to but few, and it was not until after his death that the public knew of his great generosity to this department of the University. A large and attractive picture of Mr. Warren, the gift of Dr. Clapp, now hangs in the infirmary office.

The School needs a new building. Our Mechanical Laboratory is over-crowded and our lecture-rooms inadequate. We already suffer in comparison with other universities whose dental school buildings are new and equipped with the latest and best appliances for dental work and teaching. Our facilities for carrying on the work of the surgical clinic are far from satisfactory. We need a properly appointed surgical room and a special fund, the interest of which should be directed to the maintenance of this work.

EUGENE H. SMITH, *Dean.*



## THE VETERINARY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — AS Dean of the School of Veterinary Medicine I have the honor of presenting the following report for the year 1898–99:—

At the beginning of the year there were twenty-five students in attendance upon the courses of instruction; seven in the third class, nine in the second, eight in the first, and one special.

Of the members of the third and second classes, all finished the studies of the year; of those of the first class two withdrew, one at the very beginning, the other at the end of the first half-year.

There were twelve candidates for the degree; seven from the class of 1899, two each from those of 1898 and 1897, and one from that of 1895. Of these, nine were successful and were graduated at Cambridge, in June.

The degree *cum laude* was established, by the Corporation, to be given to students who shall obtain a total average mark of, at least, 80 per cent. in all of the required examinations, and who are otherwise eligible for the ordinary degree. The computation for this general average is to be based upon the marks received by the student, in each of the subjects, in proportion to the number of hours consumed by each examination; rather than upon the gross sum of the various marks, divided by the number of the studies. In accordance with this new regulation the Faculty recommended that the degree *cum laude* be given to Messrs. Connors, Coyn, and Wadsworth, all members of the Class of 1899.

The Corporation was further asked, by the Faculty, to make the conferring of the higher degree retroactive; and to allow it to be given to Drs. Babson ('97), Dennen ('98), Fuller ('96), and Lyman ('95), who were the only graduates that had attained the necessary general average, since the organization of the School in 1882. This request was denied.

One of the Faculty Scholarships of \$150 was awarded to John Francis Connors, of the Class of 1899.

In response to communications received from the Committee to Visit the Veterinary School a series of meetings of the Faculty were held which resulted, in part, in the following important recommendations to the President and Fellows:—

1. That as a possible means of practically reducing to students, to some extent, the present amount of the tuition-fee, which is at least \$50 a year in excess of the similar fee charged by any other similar school, six

Faculty Scholarships of \$50 each be established, to take the place of the present two scholarships of \$150 each. This recommendation was accepted; and it was arranged that, beginning with the academic year 1899-1900, six such scholarships should be offered, two to each class; and awarded at the beginning of each year. The two scholarships for the first year are to be awarded to the two students, newly entering the School, who present approved testimonials showing the highest preliminary education, and who pass the best admission examinations. These scholarships for the second and third classes are to be awarded to students having the highest average marks for the first and second years' work in the School respectively.

2. In view of the fact that with its present resources only, there must continue to be an annual deficit in the financial accounts of the School, which must be paid by the University, unless the present payments for rent, taxes, etc., can be separately provided for, it was recommended that a systematic endeavor should be made to raise a sum of at least \$100,000 with which to establish the School, Hospital, and Free Clinic in buildings of their own.

3. It was recommended that the present teaching force should be materially strengthened by the addition of a demonstrator in anatomy, and instructors in comparative physiology and histology; and that special courses in bacteriology, chemistry, and dog practice be added to the instruction now given.

4. It having been proposed that it is desirable to have Veterinary Science taught in Harvard, in the future, as a specialty in medicine under the auspices of the Harvard Medical School, a unanimous opinion of those members of the Faculty who were present was given that the teaching of veterinary medicine, as a specialty of human medicine, is impracticable, because its teaching must be specialized from the very beginning and therefore demands a system of instruction coördinate with that of human medicine; and it was decided to announce to the President and Fellows that, whenever an adequate endowment is secured, it is expedient to establish a Faculty of Comparative Medicine, in whose charge the present degree of Doctor of Veterinary Medicine shall be placed, with some degree or degrees of a higher nature; and among whose members shall be included Professors of Comparative Anatomy, Comparative Physiology, and Comparative Pathology.

In compliance with a part of these recommendations, measures were taken which it is hoped will result in obtaining the money necessary to establish the School in a home of its own; and the following appointments were made: Langdon Frothingham, M.D.V., Instructor in Bacteriology and Comparative Pathology; H. Carleton Smith, Ph.G., Instructor in Chemistry; Albert J. Sheldon, D.V.S., Lecturer on Diseases of the Dog; Allen Cleghorn, M.D., Instructor in Comparative Physiology; F. A. Woods, M.D., Instructor in Comparative Histology; and Elmer W. Babson, M.D.V., Demonstrator of Veterinary Anatomy.

Month.	Genito-Urinary.		Locomoto-ry.		Respira-tory.		Circula-tory.		Nervous.		Digestive.		Special Sense.		Operations.		Skin Diseases.		New Growths.		Accidents, Injuries.		Glan-ders.	Other Animals.	Total Num-ber Cases Month.										
	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.													
August.	0	1	8	24	6	6	4	6	1	2	0	0	3	3	1	24	17	21	3	15	0	75	48	20	4	23	8	0	0	61	52	8	1	445	
September.	1	0	10	14	0	5	1	1	2	4	2	1	3	0	19	11	10	2	10	5	82	27	14	0	19	1	8	4	1	58	24	9	1	350	
October.	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	24	0	1	0	0	0	10	0	0	12	0	1	1	60	
November.	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	11	2	0	0	0	0	5	0	0	4	2	0	0	30	
December.	0	5	8	2	2	1	0	0	0	1	0	0	2	0	6	11	2	0	5	0	11	21	10	0	2	3	0	0	0	4	8	1	0	105	
January.	0	8	6	22	17	1	3	1	2	3	1	0	12	1	22	28	12	4	44	8	37	63	16	3	11	11	7	4	3	13	8	4	2	377	
February.	2	13	5	4	3	0	0	1	1	1	6	0	0	9	1	9	7	5	2	55	1	13	85	11	1	11	1	2	18	1	2	5	2	0	277
March.	1	12	10	20	9	4	0	3	3	1	3	0	12	1	13	14	6	0	64	0	29	99	19	4	19	5	8	7	0	10	23	6	0	405	
April.	1	3	12	18	12	15	0	3	2	1	3	0	0	6	2	30	19	6	0	43	5	47	82	30	3	18	9	5	20	1	7	24	12	0	443
May.	0	20	6	16	7	2	2	0	0	1	3	0	0	21	3	24	34	16	1	35	5	41	69	24	3	14	2	4	6	4	12	11	5	0	391
June.	4	10	7	15	3	0	0	2	2	3	5	0	0	9	0	17	17	7	2	27	7	36	52	19	2	13	1	1	6	1	19	13	4	0	305
July.	1	13	5	12	3	1	0	2	2	0	2	0	0	13	3	15	11	32	1	6	2	67	46	16	1	25	4	17	8	2	38	19	3	2	373
Totals.	10	85	77	155	62	30	17	19	14	28	2	4	90	12	185	169	117	15	304	33	473	594	180	21	155	45	67	73	13	240	189	55	7	3561	

H. = Horse.

D. = Dog.

C. = Cat.

<sup>3</sup> Respiratory. Abscess in throat — both recovered.<sup>1</sup> Indigestion — recovery.<sup>4</sup> Abscess on jaw — operation — recovery.<sup>2</sup> Tuberculosis — pneumonia — died.<sup>5</sup> New Growth — Genito-urinary.

## THE FREE CLINIC.

The organization, aims, and work of this division of the School has been described in this report during the last three years, where, among other things, it was pointed out that its establishment had been largely due to the good offices of the Committee appointed by the Overseers to visit the Veterinary School, who had volunteered to pay an annual rental of \$1,200 for a building on Northampton Street to be used for its purposes. Their lease of that building expired on the first of October, at about which time it was suddenly found that the clinic must be moved at once, because the building had been sold to two graduates of the School to be used by them as a private veterinary hospital.

This unlooked for necessity was a matter of considerable moment to the enterprise, because, first, it happened at the very beginning of the school year, when the class were expecting to resort to the clinic; second, it is not an easy matter to find a suitable building well situated for the purpose, that can be hired; and thirdly, the change from a locality where we had become known and established to an entirely new neighborhood would, in all probability, cause the loss of much material. However, the situation was accepted, and a search for new premises was at once undertaken; while, in the meantime, an attempt was made to carry on the clinic at the Village Street Hospital. This last attempt failed, and the experience served only to show again, as previous attempts to maintain a free clinic at that hospital had shown, that the two divisions of the work cannot be successfully carried on there together. On the 21st of November, the building at 52 Piedmont Street was hired by the Committee to Visit the Veterinary School, who again undertook to pay the rent; and, after some necessary alterations had been made, the clinic was opened in its new home on the 5th of December.

The extent of the work for the year is shown in the accompanying table. The total number of cases, for 1897-98, as indicated in the similar table in the last report, was 3,925, while the total number for this year is but 3,561. During October, November, and December, 1897, 926 cases were treated against only 195 cases for the same period in 1898. This falling off, amounting to 731 cases, was undoubtedly due to the enforced change of residence; because a further comparison will show that for the remaining nine months of 1897-98, 3,000 cases were treated as against 3,366 for the same



months of 1898-99, so that, on the whole, this work may be said to be fully holding its own in the new quarters.

The importance and value to the School, of a clinic of this character is scarcely to be overestimated; for it is a laboratory in which, under proper supervision, the students actually perform the functions of the practitioner; they make the diagnoses, prescribe the treatment, administer the medicines, and perform all necessary operations. That the patrons of the institution appreciate its advantages is well shown by the fact that the same individuals bring their animals again and again, and that the volume of the business is well sustained. It is not, therefore, too soon to say that this division of the School's work may fairly be looked upon as permanent and worthy of being considered when plans for the new buildings of the Medical Department of the University are studied.

That there is a value in these cases, beyond that which comes to the student who proposes to become a veterinarian, is a fact that will be appreciated after slight enquiry. Taking from the table of cases the item of "special sense" in dogs, for example, it is found that 304 separate examinations were made. The cases embraced under this head are diseases of the eye and ear, and include the various diseases of the eyelids, embracing new growths, entropion, ectropion, conjunctivitis due to various causes; wounds, abrasions, ulcers, and growths of and upon the cornea, and various conditions of the deeper structures as, iritis, cataract, etc.; and those diseases of the external auditory canal to which the dog is peculiarly liable. All of this material, as well as much else in the table, such as new growths, skin diseases, accidents, including many fractures and surgical operations; and nervous disorders such as chorea, paralysis and so forth, can be used by the student who is to become a practitioner of human medicine with equally great advantage. To him who aspires to become a finished diagnostitian, or comparative pathologist, the general opportunity is as important as it is rare in this country.

Much of the life-saving knowledge that has been recently brought to the practice of human medicine has been arrived at through the study of diseased processes in animals. Much more of such good would come through the more general study of diseased animals by students of medicine. Do not the indications of the past teach that much of the future progress in both the science and the art of medicine must come through this sort of comparative study?

Among other things, it has been the constant endeavor of the directors of this clinic to make the cost of necessary medicine as

small as possible to the owners of the animals, so that the institution may be as nearly a "free clinic" as is attainable under existing circumstances. To this end a circular has been issued, once each year, asking subscriptions in money from those who are charitably disposed toward animals. The replies to these circulars have always been generous, and because of this response, it is now possible to report that during the year more medicines have been given away than formerly and the prices of that which has been sold have been to some extent reduced. During the nine more active months, excluding in both instances the months of October, November and December, while 366 more cases were cared for, the fees demanded for medicines have been reduced from \$398.80 in 1897-98 to \$228.70 in 1898-99; the reduction being \$170.10, which, though not a large sum in itself, is a considerable proportion of the entire amount collected from this source. It is hoped that further gifts will enable a still greater reduction in this direction, until needed medicines can be given to all deserving cases, free of charge.

The circular asking for subscriptions contained, this year for the first time, the following notice: "Small tickets have been prepared, by the use of which subscribers may easily send lame or ailing horses, or other animals that may be seen in the streets, to the Dispensary for treatment. The owners of such animals often do not know that a place of the kind exists; they do not read the newspapers, and belong to a class that it is difficult to reach by ordinary methods of public notice. Nevertheless, they would be glad to use the opportunity if they did know of it." A considerable number of these tickets were asked for, and the practice will be continued. With a little coöperation of this sort, easily given by those interested in preventing cruelty to animals, much suffering may be prevented. A horse that is seen to be limping at every step, as he performs his work, is suffering pain every time that the ailing limb is called into action; and the more he limps the greater is the indicated pain. It is a fair question whether such a horse does not really suffer more than an animal that is occasionally beaten unmercifully by a cruel driver; the misery of the one is soon over, that of the other is as continuous as his work.

While it is, of course, impossible for the clinic to cure all these cases, it can cure many of them, while nearly all can be relieved in some degree. Moreover, the owner can be made to hope for and aim at his animal's recovery, which without this free aid he would, oftentimes, not be able to do.

CHARLES P. LYMAN, *Dean.*

## THE VETERINARY HOSPITAL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to submit the report concerning the Hospital of the School of Veterinary Medicine for the year 1898–99.

The resignation of Dr. George B. Foss was tendered, and accepted by the Corporation, during the last week of September, to take effect October 1st, and, unfortunately, this vacancy was not filled until March 1, 1899, when Dr. Albert J. Sheldon was assigned to this department, which appointment has proven eminently satisfactory.

The competition for the positions of House Officers was as usual sharp; Messrs. Wadsworth and Tobin were appointed and faithfully and diligently performed their duties throughout the year.

The subscription plan, which was reintroduced January 1, 1898, continues to grow in favor with the patrons of the Hospital, as indicated by the increased number of subscribers for the current year.

The special laboratory instruction in the preparation and administration of drugs, application of dressings, bandages, etc., has been given daily, by one or more members of the Hospital staff, from eight until ten o'clock, to members of the third class.

The usual clinical exercises have been given at ten o'clock, to members of the second and third classes, by Drs. Osgood, Howard, Leonard, and Sheldon.

MONTH.	Locomotory.	Respiratory.	Digestive.	Genito-Urinary.	Operations.	Circulatory.	Nervous.	Special Sense.	Skin Diseases.	New Growths.	Total.
November. . .	20	6	10	2	10	..	2	6	4	3	63
December. . .	19	16	16	4	11	..	5	3	3	4	81
January . . .	24	16	21	11	22	2	6	9	2	5	118
February . . .	20	10	11	1	22	..	..	2	6	6	78
March . . .	29	20	12	1	36	1	13	7	15	8	142
April . . . .	24	11	14	2	25	..	4	3	14	10	107
May . . . . .	29	4	9	3	40	1	2	4	12	7	111
June . . . . .	11	5	18	1	29	2	1	2	17	..	86
July . . . . .	23	2	18	2	23	..	6	1	17	5	97
August . . . .	20	2	20	..	10	..	5	4	25	4	90
September. . .	21	3	1	..	21	..	2	3	20	2	73
October. . . .	22	6	6	..	50	..	3	4	24	2	117
Totals . . .	262	101	156	27	299	6	49	48	159	56	1163

The volume of business (as may be seen by the preceding table) has not been as great as during the past year, owing to various causes which are not likely to recur.

The cases exhibited under the head of "Out Clinics" amounted to 609 and embraced the usual variety of illness, accident and lameness, all of which received the necessary treatment, including 277 surgical operations.

During the year the Hospital has furnished subjects for demonstration, in the holdings of autopsies, given by the Instructor in Pathology. It has also furnished material and opportunities for experimental work to a post-graduate class (in human medicine) as well as more or less material for demonstrative work at the Medical School.

The special operating class for senior students, which was organized in October, 1899, and described in my last annual report, continues to be an exercise which commends itself equally to the students and instructor.

*Finance.*—It is unfortunate for the Hospital that its accounts are merged with those of the School and Charity Hospital, as it would lead one, not familiar with the details, to suppose that the Hospital was in a measure responsible for the annual deficit, which has never been the case.

Since it is not possible to make any material reduction in the expenses of the School in consequence of a diminished attendance, a reduction in the receipts, as is noted for the current year, from the School and Charity Hospital, is material, and must necessarily increase the deficit correspondingly. But this condition does not obtain in the Hospital, where there is a direct ratio between expense and receipts, dependant upon the number of animals that are fed and cared for during the year.

An examination of the detailed report of the Treasurer for the year will show that, notwithstanding the fact that the receipts from the Hospital and Forge were \$2,492.35 less than those of 1897-98, there was at the same time a corresponding reduction in the expenditures in the Hospital, as for example in the two items alone, of "Salary and Wages" and "Hay, Grain, and Supplies", there was a reduction of \$2,040.20, and every other Hospital expense was reduced proportionately, except the item of water, so that the result of the work for the year was practically the same as for the year 1897-98.

FREDERICK H. OSGOOD,  
*Surgeon in Charge.*



## THE BUSSEY INSTITUTION.

TO THE PRESIDENT OF THE UNIVERSITY :—

SIR, — I respectfully submit the following report on the Bussey Institution for the year 1898–99 :—

In so far as regards the number and character of the students in attendance at the School of Agriculture and Horticulture, the year 1898–99 may be classed as one of unprecedented prosperity; and the best of this good fortune is that the increase in the number of students is not to be regarded as abnormal, since a still larger number have already been enrolled for the current year (1899–1900). In any event the somewhat larger number of students in these two years is no more than a natural and healthy increase over the number present in each of the previous five years.

It may now safely be admitted that the school has struck root and has acquired strength enough to maintain vigorous and continuous growth which shall ensure the production in due course of abundant harvests. But while the influx of students is most inspiring, and although the personal attention given by the instructors may well be classed as good, the material equipment of the school is in many respects deplorable. Owing to the occupancy of a large part, and the best part, of the stone building for purposes of the State Board of Health, the instructors in agriculture and in agricultural natural history find themselves cramped and crowded at every turn. There is no place in which to study or display the anatomical specimens (bones, etc., of domestic animals), now stored in barrels, which were collected by our former colleague, Professor Slade, and left by him carefully arranged on shelves and in cases in the Museum room from which they were thrown out when this room was given over to its present occupants. There is actually no place in which to put the skeleton of a cow which was to have been procured a few months ago for the purposes of instruction in the Department of Natural History. There is no room now under the control of the school large enough to contain the tables needed for the proper conduct of a written examination. There is no place to put, so that they may be accessible, the new books which are constantly accumulating. Indeed, there is urgent need of a new library room large enough to hold the books

now in our possession and to admit of receiving from the Library at Cambridge some sets of agricultural serials which could be put to much better use at the Bussey Institution than at the College. Moreover, one at least of the class rooms now in use is much too small for the work that has to be done in it.

During the year, instruction was given regularly and constantly in Agriculture, Horticulture, Natural History and Agricultural Chemistry, and in Chemical Analysis, by Messrs. Hersey, Watson, Morse, and Storer. There were twenty-six students in attendance.

One part or number of the Bussey Bulletin (No. VIII of Vol. II) was published. It was entitled "The Basket Willow," by Edmund Hersey, Instructor in Agriculture.

F. H. STORER, *Dean*.

## THE LIBRARY.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — I have the honor to submit my second annual report on the Library, covering the year 1898–99.

In my last report I spoke of the need of enlarging the Library building so as to provide study-rooms in convenient relation to the book-stack. In November, 1898, a petition was presented to the Corporation signed by a number of professors setting forth this need, and asking that such rooms be provided by the erection of a one-story addition along the north side of the east stack. Action in accordance with this request was thought inexpedient by the Corporation, but the experience of the year has only served to emphasize the desirability of providing such rooms in some way, and to show in how many other ways the necessity of enlargement is pressing upon us. The reading-room, relieved as it is by the Harvard Hall reading-room, the rooms in Warren House, and the other class-room libraries that have grown up in recent years, is sufficient for our immediate needs, but the space it occupies in the Library building begins to be seriously needed for the book-stack. I stated last year that we had room enough in the stack for the accessions of perhaps six or seven years, and so far as the ordinary purchases go this was doubtless the case; for a good many thousand volumes, if they are to be distributed throughout the library, can still be added, gradually filling up the empty spaces which were left when the books were first arranged. A book-stack with its books well classified on modern lines is like a sponge partly filled with water, which can soak up and hold perhaps an equal quantity of water in addition before it is saturated. Our book-stack is not yet saturated with books, but in some parts it begins to approach that condition, and the accessions of the past year having been fifty per cent. greater than the average of the last ten years, with every prospect of a still greater increase during the coming year, it is likely that the point of saturation will be dangerously near before we are prepared for it. Relief is demanded long before that condition is actually reached, for a book-stack entirely filled is as impossible to deal with as a sponge when completely saturated. Our immediate difficulty however is to find room for large collections coming to us at

once, — place of temporary storage for such a gift as the remainder of the Gurney bequest lately received, or permanent shelf room for a great special collection such as the Riant library which will reach us in a few months and add perhaps ten thousand volumes to our shelves. Such great gifts add immensely to the strength and fame of the library, and make Cambridge the necessary centre for study in the fields enriched by them. Such gifts we must be ready to receive and use, and we may confidently expect that they will be more numerous in the future than in the past.

The only way to increase the capacity of the present building and so secure immediate relief is to add a small seventh story under the roof of the east stack, and extend on one side the rows of the sixth story. The first would add shelving for a possible 15,000 volumes, and the second would extend the present capacity of the sixth floor by 3,800 volumes.

But the mere lack of shelf room in the stack is not our only difficulty. A book-stack is undoubtedly the most economical way of storing many books in a limited space, and for a large part of a library it is on this account the best. For certain classes of books, however, and for certain collections it is unsuited; yet nearly all our shelving, except that for reference books in the reading-room, is of this type. For large illustrated books, such as are found in an art collection, we should have a special room with deep sliding shelves and broad tables on which to use the books. Our great collection of maps, over 18,000 sheets, is in cases built along the edge of the stack where the maps cannot be consulted easily or without risk of injury, and where it is quite impossible to display them to a class. Our newspapers, such of them as have not been sent off to be stored in the basement of a dormitory, are shelved in a cave opening from the basement where there is no direct ventilation and no light, and where dampness cannot be avoided in summer. Our collection of Archives and of printed material relating to the history of the College is securely housed, but is not placed, as in my opinion it should be, in a room of its own where it can be conveniently consulted by those who have the right to use it, and where it can be studied and cared for by the officer who has charge of it. I mention these things simply to show under how many hindrances the work of the Library is now necessarily carried on, and what improvements can be made when the opportunity for enlargement comes.

The accommodations for the working staff of the Library, more than commonly ample when the east wing was built in 1877, are now far outgrown, and in many ways make the daily administration of



the Library difficult and trying. I earnestly hope that some relief which shall give us better facilities for study, ampler shelf room for books, and larger workrooms with all the conveniences that can lighten labor and simplify administration, may not be long delayed.\*

One of the difficult problems in any library is the care and disposition of pamphlets. It may be of interest to state briefly the methods which have been employed in this Library and the modifications which have been made from time to time. There is no intrinsic reason why pamphlets should be distinguished from books as to either shelving or cataloguing, but most libraries are forced by considerations of expense to treat them in a more summary fashion. Up to 1877 this Library catalogued all its pamphlets with substantially the same care that it bestowed on its books, but it stored the greater part of them in "pamphlet files" arranged in an alphabetical sequence by authors and tied up in bundles of convenient size; a relatively small number were separately bound and were shelved with the books. In 1877 the general cataloguing of pamphlets was suspended and has never been completely resumed. Of the pamphlets received since that date a somewhat larger proportion (generally several hundred a year) have been separately covered, and treated in all respects like other bound books; annual reports and similar documents, the earlier numbers of which were already in the old files, have been sent to the same files to join the sets to which they belong; another portion has been distributed into boxes alphabetically by subjects in the librarian's room; and the remainder have been sent to the pamphlet files where they form a "new series" arranged like the old series in alphabetical sequence but uncatalogued. During the last ten years many pamphlets have been picked out from both the old and the new files and, with others from the boxes in the librarian's room, have been bound up in volumes classified sometimes by author, but usually by subject under such general heads as Painting, Massachusetts Towns, Education, and so forth. Hardly any progress has been made in cataloguing the contents of these volumes (now about 1,500 in number), further than to insert under appropriate headings in the subject catalogue references to each volume as a whole. It is the intention to take up these volumes when the strength of the staff will permit, and enter the several pamphlets of the subject volumes *separately* on the author catalogue, but *collectively* on the subject catalogue, and the several pamphlets of the volumes consisting of a single

\* For a more detailed statement of the needs of the Library in these directions I beg to refer to an article in the *Harvard Graduates' Magazine* for December, 1899.

author's work separately (if necessary) on the subject catalogue, and collectively on the author catalogue. 182 volumes were catalogued in this way in the summer of 1898 and the method was found to be satisfactory.

In the autumn of 1898 the pamphlets which had accumulated in the boxes in the librarian's room (about 10,000 in number) were reclassified by Mr. Carney and myself so as to correspond more closely with the system of classification of the books, and the boxes were distributed through the stack, so that they now stand by the books relating to the same subjects; there remains in the librarian's room a collection of booksellers' catalogues and special bibliographies, and pamphlets on those subjects which have not yet been classified; these also will go to the shelves as soon as the shelves are ready for them.

Pamphlets which come into the Library as current accessions are of different degrees of value. According to their character they are either (1) separately covered and treated in all respects like books, (2) distributed according to subject in the boxes already provided, or (3), if they cannot usefully be classified in this way, sent to the "new files" where they are alphabetically arranged and can be easily found. "Continuations" of course go to join the earlier numbers of their sets, wherever the sets may be. The great mass of our pamphlets belong to the second class above. These may be either (*a*) fully catalogued at once, (*b*) catalogued on a single author slip for the official catalogue (this work is done by students who receive Price Greenleaf aid), or (*c*) left unrecorded. The pamphlets of which no record is made are principally articles taken from duplicate odd numbers of periodicals and reports, duplicate pamphlets which there is some reason for keeping, newspaper clippings mounted on uniform octavo sheets, and miscellaneous scraps and leaflets. The result is that we have a full record of part of our pamphlets, and of the rest a less full but very inexpensive record of all such as require a record; and that nearly all our current pamphlet accessions are found on the shelves with the books on the same subject. As the pamphlet boxes become filled their contents will be bound up in volumes which will remain on the same shelves and still bear the same shelf-marks. When bound each volume is likely to contain titles already catalogued in full, other titles recorded on the official catalogue slip only, and others for which no catalogue slip is thought necessary. The cataloguing of the second class of titles should be completed by adding in the public catalogue author entries and occasional subject entries when the collective entry under the general

subject of the volume is not adequate, but whether this is done or not, we shall have a clue to all the material that is worth tracing.

At the request of Professor Hanus special efforts were made in the spring to fill out our files of educational reports and manuals, and applications were sent to the educational bureaus of all the states that were not already well represented on our shelves, and to the more important city boards; the response from all sides was ready and abundant.

We have also tried, at the request of Dr. C. B. Davenport, to bring together as complete a series as possible of the records of the various stock breeding associations interested in the improvement of the breed of cattle, horses, sheep, dogs, and swine. Circulars stating the object of the collection were sent to about 95 different associations, and in response we have received about 150 volumes from 30 associations. To all of these the thanks of the Library are due. About half of the associations applied to paid no attention to our request, and others have been obliged to decline on account of special restrictions. The main portion of the circular was as follows:—

“The Library of Harvard University desires to bring together, for purposes of scientific study, as complete a collection as possible of the pedigree records of cattle, horses, sheep, swine, and dogs, published by the numerous breeders’ associations of this country. These records are of value as material for the study of heredity in domesticated animals, and we desire to offer to students the opportunity of working upon them in a scientific way. The collection will be placed in the Museum of Comparative Zoölogy, where it will be freely put at the service of all students.

“The extent of this literature is so great that the Library cannot undertake to purchase the volumes, but I venture to hope that you will be willing to contribute to the advancement of this branch of science by presenting to this Library as complete a file as possible of your published records of pedigrees, and that you will kindly send future volumes of the same as published.”

The Free Library of Philadelphia has undertaken to prepare as a contribution to the approaching celebration of the Gutenberg anniversary in the city of Mainz, a list of the incunabula in the United States in public and private libraries. Miss Huntington, for many years a valuable member of the Library staff, kindly undertook to prepare the list of such books in this library, and has drawn up an excellent catalogue of 167 books printed in the 15th century. I am glad to be able to express here our indebtedness to Miss Huntington for her careful and scholarly work. It is probable that still other 15th century books may yet be discovered in the Library, but the list



is substantially complete. When the Riant collection is received this will add a hundred incunabula to our shelves.

No new Bibliographical Contributions have been published since my last report, but two which have been long out of print and often asked for have been reprinted from the original plates. These are No. 19, The Kohl Collection of Early Maps, and No. 26, The Carlyle Collection, and I shall be happy to supply these to any libraries that lack them. No. 18, Mr. Winsor's Bibliography of Ptolemy's Geography should also be reprinted, and will be as soon as Mr. Tillinghast has put in order some necessary corrections and additions. No. 25, the List of Works on North American Fungi by Professors Farlow and Trelease published in 1887 is also out of print; and I am glad to state that Professor Farlow has promised to bring it down to date. Two new Contributions may be expected in the near future, one a Catalogue of the Library's rich collection of Chap-books compiled and annotated by Mr. Charles Welsh the author of the "Life of John Newberry a bookseller of the last century," and of other works on children's books; the other a Bibliography of Justin Winsor, much material for which has already been brought together by Mr. A. C. Potter.

The printed "Index to the Subject Catalogue," No. 2 of the Library's "Special Publications" was brought to a close in 1891; supplementary lists of new headings have been printed from time to time since. These new headings have now been consolidated into a "Supplement" and will be printed for general use in other libraries as well as in our own. This supplement will be No. 3 of our "Special Publications" and will, when published, be put on sale with the Publication Agent of the University.

The accessions to the University Library for the year, and the present extent of the various departments, are shown in the table on the opposite page.

The accessions to the Gore Hall collection include 1,194 volumes of bound serials (received in parts), 805 volumes made by binding pamphlets singly, and 36 volumes made up of many pamphlets bound together.

To this total of 528,515 volumes should be added the 19,996 volumes of the laboratory and class-room libraries (see below), giving a grand total of 548,511 volumes for the University Library.

These figures should however be accompanied by the caution that they no doubt exceed the fact, but just how far they vary from the truth cannot conveniently be determined until the reclassification of the Library is more nearly completed. Of the cause of this dis-



ACCESSIONS.	Volumes added.	Present extent in	
		Volumes.	Pamphlets.
Gore Hall (College Library) . . . . .	15,174	379,000	377,000
Law School . . . . .	6,072	50,412	6,126
Lawrence Scientific School . . . . .	238	4,880	498
Divinity School . . . . .	877	29,547	6,610
Medical School . . . . .	36	2,240	. .
Museum of Zoölogy . . . . .	359	32,318	5,400
Astronomical Observatory . . . . .	400	9,435	13,698
Gray Herbarium . . . . .	218	7,565	5,288
Bussey Institution . . . . .	120	4,064	10,505
Peabody Museum . . . . .	96	2,044	2,697
Arnold Arboretum . . . . .	682	6,723	. .
Dental School . . . . .	181	287	. .
Total . . . . .	24,453		
Deduct, transfers from Gore Hall to Department Libraries . . . . .	708		
Total . . . . .	23,745	528,515	427,822

crepancy I spoke in my last report. We now make a record of the withdrawals from the Library more complete than formerly, as well as a record of the additions to it, so that the inaccuracy of the total is not likely to increase.

The accessions of the past year both to the Gore Hall collection and to the whole University Library exceed those of *any* previous year by about 2,000 volumes, and are about 50 per cent. greater than the *average* increase of the last ten years, which has been 10,731 volumes in the case of the College Library and 15,834 for the University as a whole.

This is due, as regards the College Library, to the receipt of an unusual number of gifts amounting to over 7,000 volumes. Every year the library is indebted to a host of friends, individual and corporate, whose names we have never attempted to record in print, although due acknowledgement is made at the time to the donor for every gift received. A brief mention of a few of the most interesting or considerable gifts is all that can be made here.

From Professor Morris Loeb of Columbia University, of the Harvard Class of 1883, and his brother James Loeb of 1888, at the instance of Mr. Leo Wiener, we received the means to purchase from a collector in New Jersey a notable collection of Judeo-German literature printed in America numbering 125 volumes and

562 pamphlets : to this Mr. Wiener added his own collection of works in the same dialect printed in Europe, gathered mainly during the previous summer, comprising 325 volumes and over 1,100 pamphlets.

From Dr. Algernon Coolidge of Boston 16 volumes of Mexican books, mostly early imprints, including a Guasteca catechism of 1571 which is of the highest rarity.

From Dr. Fitzedward Hall of the Class of 1846, now of Marlesford, Suffolc, England, who some years ago presented to the Library some 500 Sanskrit manuscripts, two cases of books of Oriental literature numbering 387 volumes.

From the Viking Club, composed of Norwegian residents of Boston and vicinity, who became interested in the Library through Dr. W. H. Schofield, Instructor in English, 154 volumes of Norwegian literature in the best editions and uniformly bound. The books were selected with the coöperation of Dr. Schofield so as to add to our collection what was most needed, and the gift is welcome not only because it strengthens a department hitherto weak, but because it shows a recognition of the fact that a better equipment of the College Library in any subject is a valuable means of promoting the study of that subject, and that this method of action appeals to those whose primary interest is in the promotion of the study as well as to those whose first interest is the advancement of the College.

From Mrs. John Ruggles of Brookline, a Hebrew Bible of 1635 which belonged to Judge Samuel Sewall in 1687, had afterwards passed through the hands of at least three generations of College students when Hebrew was a required study, and had been owned for many years by President Benjamin Wadsworth and by his grand-nephew Benjamin Wadsworth, minister of the church in Danvers for 53 years. From Mr. Edgar C. Felton, a copy of Sharp's "Cursus Theologicus," once in the library of Leonard Hoar, the third President of the College, and afterward owned by Joseph Rowlandson of the Class of 1652, and probably by Jonathan Edwards.

From O. B. Henshaw of the Class of 1893, by bequest, his library of philosophical books numbering 150 volumes. A careful student of philosophy and lately secretary of the Cosmopolitan University, Henshaw had enlisted for the Spanish War in the Brooklyn Invincibles, but died at Camp Alger, July 4, 1898. A large part of the books have been placed in the Library of the Psychological Laboratory.

From Mr. Edward W. Hooper, the remaining part of Professor E. W. Gurney's library, left to the College by bequest in 1886.

The first and more valuable portion rich in works on Roman Law received in 1890 contained 1,980 volumes. The present accession numbers about 2,500 volumes.

From Mrs. Justin Winsor, the books bequeathed to the Library by the late Librarian. Under Mr. Winsor's will the Library was to receive at Mrs. Winsor's death 200 volumes; but Mrs. Winsor preferred that the selection should be made now, and gave us permission to take whatever we preferred after the Librarian of the Massachusetts Historical Society had selected the 200 volumes bequeathed to that Society. She also kindly insisted upon the Library's not confining its selection within the limit of 200 volumes, and we have accordingly received from Mr. Winsor's shelves 255 volumes beside his manuscript life of Garrick, and a collection of interesting scraps and memoranda bearing on the same subject. Some of the books received reflect Mr. Winsor's early interest in the drama, others are connected with his later historical studies; a few have been placed in the Child Memorial Library and in the Library of the Historical Department.

From Mrs. G. A. Schmitt, 253 volumes from the library of her husband Captain George Adam Schmitt, instructor in German in Harvard College from 1856 to 1863, and a captain in the 20th Massachusetts Volunteers. Captain Schmitt died in the island of Guernsey, September 21, 1898.

From Asst. Professor A. C. Coolidge, 322 volumes relating to the history of Poland, beside many other volumes given from time to time throughout the year.

From Mr. J. Randolph Coolidge, of Boston, \$3,000 to be spent for books on the history of Turkey and the Eastern Question. The immediate occasion of this generous gift was the approaching sale in Paris at auction of the library of M. Charles Schefer, a distinguished student of Eastern history and editor of many volumes of early travel in the Levant. His library contained a rich collection of works relating to the history of Turkey, and much contemporary material of the 16th and 17th centuries bearing on the conflicts between the Turks and the nations of Europe. A substantial part of this collection, amounting to 445 volumes, was bought at a cost of a little under a thousand dollars, and the balance of the gift remains to be used for further purchases in the same field.\*

\* Since the close of the period covered by this report the balance of Mr. Coolidge's gift, still further increased by his generosity and supplemented by Professor A. C. Coolidge and by contribution from the Library funds, has been the means of acquiring the great library of Count Riant, relating mainly to the

Mrs. Frederic T. Philips of Lawrence, Long Island, has given \$5,000 to establish a fund in memory of her brother Kenneth Mathe-son Taylor of the Class of 1890, who died October 14, 1895,—a man of the finest loyalty and devotion to principle. The income of the fund is to be used for the “purchase of books for the College Library, to increase its efficiency so far as it may be possible, in the department of English literature.” Such a gift brings in the course of years a large addition to the Library, and permanently connects with it the name of the person commemorated.

The total gifts to the College Library during the year 1898–99 and five previous years have been as follows:—

GIFTS TO THE COLLEGE LIBRARY.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Volumes . . . . .	6,026	4,351	3,903	5,048	2,646	7,096
Pamphlets . . . . .	16,598	7,522	8,908	8,427	11,365	12,448
Totals . . . . .	22,624	11,873	12,811	13,475	14,011	19,544

The accessions by gift and purchase to the University Library as a whole (excluding the laboratory and class-room libraries) have been as follows during the last twenty-one years:—

Volumes.	Volumes.	Volumes.
1878-79 . . . 10,389	1885-86 . . . 9,191	1892-93 . . . 22,370
1879-80 . . . 7,247	1886-87 . . . 11,924	1893-94 . . . 15,788
1880-81 . . . 9,804	1887-88 . . . 16,468	1894-95 . . . 15,325
1881-82 . . . 9,129	1888-89 . . . 12,253	1895-96 . . . 17,317
1882-83 . . . 9,818	1889-90 . . . 16,051	1896-97 . . . 15,474
1883-84 . . . 12,360	1890-91 . . . 13,276	1897-98 . . . 16,706
1884-85 . . . 14,558	1891-92 . . . 13,785	1898-99 . . . 23,745

Dr. Malcolm Storer, the Curator of Coins and Medals, reports that 218 coins and medals have been received, 8 by purchase, and 210 by gift from C. E. Cameron, M.D., Miss A. C. Storer, the Curator, and others.

“Special success has attended the efforts of the Curator to enlarge the collection of medals struck in honor of holders of Harvard degrees, and so far as he knows there are now only about thirty such men unrepresented in the collection. The Massachusetts Humane Society has made to the University what is hoped will prove to be a permanent loan of its collection of life-saving medals which with a

history of the Crusades and of the Latin East. Of the character and contents of this collection, the most valuable which the Library has ever received, with the possible exception of the Ebeling library given in 1818 by Israel Thorndike, I can speak with fuller knowledge in my next report.



few additions made by the Curator form a collection of exceptional interest.

“The Curator feels that any medals connected with other universities or struck by them in honor of their sons would be especially suitable for our collection, and, while we possess already quite a number of such medals, further gifts would be highly appreciated.”

## LABORATORY AND CLASS-ROOM LIBRARIES.

The present extent of the laboratory and class-room libraries is as follows : —

LABORATORY AND CLASS-ROOM LIBRARIES.	Perma- nent.	On Deposit.	Totals.
1. Chemical Lab. <i>Boylston Hall</i> . . . . .	524	1,013	1,537
2. Physical Lab. <i>Jefferson Phys. Lab.</i> . . . . .	27	367	394
3. Botanical Lab. <i>University Museum</i> . . . . .	580	124	704
4. Geological Lab. <i>Do.</i> . . . .	252	..	252
5. Mineralogical Lab. <i>Do.</i> . . . .	433	225	658
6. Phys. Geography Lab. <i>Do.</i> . . . .	334	173	507
7. Zoological Lab. <i>Do.</i> . . . .	265	..	265
8. Classics. <i>Harvard Hall 3</i> . . . . .	3,302	143	3,445
9. History. <i>Harvard Hall R. R.</i> . . . . .	1,793	17	1,810
10. United States History. <i>Harvard Hall R. R.</i> . . . .	824	8	832
11. Political Economy. <i>Do.</i> . . . .	1,004	1	1,005
12. Social Questions. <i>Do.</i> . . . .	831	..	831
13. Child Memorial. <i>Warren House</i> . . . . .	2,977	33	3,010
14. Romance Languages. <i>Do.</i> . . . .	528	2	530
15. German. <i>Do.</i> . . . .	471	..	471
16. French. <i>Do.</i> . . . .	2,318	..	2,318
17. Sanskrit. <i>Do.</i> . . . .	555	..	555
18. Semitic. <i>Sever 7</i> . . . . .	876	..	876
19. Mathematics. <i>Sever 22</i> . . . . .	314	88	402
20. Music. <i>Holden Chapel</i> . . . . .	160	..	160
21. Philosophy (Psychol. Lab.). <i>Dane Hall</i> . . . .	504	38	542
22. Fine Arts (incl. Gray and Randall Coll.). <i>Fogg Museum</i> . . . . .	784	..	784
23. Architecture. <i>Archit. Department Bldg.</i> . . . .	246	..	246
24. Preachers' Library. <i>Wadsworth House</i> . . . .	94	..	94
Totals . . . . .	19,996	2,232	22,228

The four libraries of History, United States History, Political Economy and Social Questions (in all nearly 4,500 volumes), remain as heretofore in Harvard Hall in charge of an attendant. The room is open from 8.30 A.M. to 5 P.M., and at the close of the day books may be taken out for overnight use. From January 3, 1899, to the end of the mid-year examination period this room was kept open through the evening also and no books were loaned; but the experi-

ment showed that, on the whole, in the case of this room, the best results are secured by closing it at five o'clock and allowing the books to be borrowed for evening use.

During the summer the Warren House on Quincy Street, which had been assigned to the use of the Division of Modern Languages, was fitted with shelving and furniture; and in it are now installed the Child Memorial Library, the Romance Library, the libraries of the French and German departments, and (upstairs) the Sanskrit library of the Indo-Iranian Department. The rooms are well adapted for the purpose, have something of the attractive and familiar air of a private library, and are open from 9 A.M. to 10 P.M. in constant charge of an attendant, so that the condition of these libraries is far better than it has previously been when they were scattered in the class-rooms of Sever Hall and subject to no constant supervision. It is no doubt true that most persons find it easier and pleasanter to work in a room of moderate size than in a great reading-room where there are unavoidable distractions. The other laboratory and class-room libraries remain under practically the same conditions as last year.

#### USE OF BOOKS IN THE COLLEGE LIBRARY.

The following table shows the use of books at Gore Hall in 1898-99 as compared with previous years:—

USE OF BOOKS.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
1. Books lent (excluding overnight use)	55,898	57,241	60,346	59,781	59,611	61,272	63,005
2. Used in the building (Recorded use only.)	23,671	22,442	23,500	22,230	22,965	27,017	25,595
3. Overnight use of reserved books . . .	24,482	25,377	20,985	8,594			
Totals . . . . .	104,051	105,060	104,831	90,605	82,576	88,289	88,600
4. Overnight use of Harvard Hall Reading-room . . . . .					9,288	11,938	12,046

The number of books lent continues to increase at a fairly steady rate. Borrowing has doubtless been encouraged by the large number of attractive books both old and new that are constantly kept on open shelves in the delivery room where every one who comes into the library is tempted to look them over.

Of the constant use of the reserved books in the reading-room, and of the collections of reference books, periodicals, and United

States documents, freely accessible to all, no record is possible. The extent of these open collections and their growth is shown in the following table:—

OPEN COLLECTIONS.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Bound Periodicals . . . . .	3,444	3,525	3,619	3,813	3,275
Reference Books . . . . .	2,696	3,896	3,822	3,853	4,142
Reserved Books . . . . .	6,847	7,677	8,090	8,117	8,344
U. S. Documents . . . . .	3,240	3,370	3,465	3,592	3,664
Total . . . . .	16,227	18,468	18,996	19,375	19,425

The reduction in the number of bound periodicals is due to the removal of some sets to the stack on account of the crowded condition of the shelves.

To the volumes enumerated above should be added the books in the Harvard Hall reading-room (4,478), those in Warren House (6,884), and those in the other class-room and laboratory libraries (10,772), making altogether, at present, over 41,000 volumes which are directly accessible in an informal manner to the members of the University.

In addition to this, cards of admission to different departments of the Library are given, on recommendation of an instructor, to all advanced students who need to go directly to the shelves for purposes of investigation in connection with their work. Such students have the same facilities for the examination and study of all the resources of the Library, in their chosen departments, that the officers of instruction enjoy. The use of these cards of admission to the book-stack is shown in the following table:—

ADMISSION TO THE BOOK-STACK.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
History . . . . .	41	59	68	63	66	54	51	78
Science . . . . .	9	28	27	9	4	11	33	43
Art (including Music) . . . .	13	4	8	5	11	18	34	38
Literature . . . . .	45	62	63	58	63	64	90	90
Classics . . . . .	22	26	45	44	41	41	52	60
Philosophy . . . . .	16	5	17	12	6	4	11	19
Theology . . . . .	9	12	3	3	1	1	3	5
Political Economy . . . . .	14	9	15	15	12	4	9	12
Education . . . . .	..	..	3	..	1	5	2	8
Geography . . . . .	..	..	..	..	..	8	14	2
Total . . . . .	169	205	249	209	205	210	299	355
Times of use . . . . .	3,629	4,560	5,974	4,352	4,601	4,381	5,750	5,826

It should be remarked that the total number of persons admitted to the stack on these cards is 279, not 355, permission in more than one department having been granted in a number of cases.

The number of students who take books from the Library, and their relation to the whole number connected with the Cambridge departments of the University, is shown in the last three years and at previous ten year intervals in the following table : —

STUDENTS OF	1874-75.		1884-85.		1894-95.		1896-97.		1897-98.		1898-99.	
	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.
Divinity . . .	20	16	26	26	50	40	37	36	40	36	26	26
Law . . . .	139	63	153	122	404	176	475	217	548	241	551	302
Scientific .	29	21	28	21	308	144	368	162	410	186	415	273
Resident Grad.	55	18	70	52	242	204	279	224	272	241	308	267
Senior Class .	152	109	191	170	327	318	328	290	342	322	369	341
Junior Class .	159	96	234	216	348	335	377	311	387	333	335	309
Sophom. Class	208	124	256	220	425	323	473	268	450	305	508	446
Freshm. Class	197	108	255	205	399	236	416	263	471	264	471	381
Sp. Students .	. . .	. . .	. . .	. . .	168	127	160	120	169	127	168	143
Total . . .	959	555	1213	1032	2671	1903	2913	1891	3089	2055	3151	2488

The percentage of undergraduates who borrow books from the library fluctuates in a rather extraordinary manner from year to year. In 1897-98, 26 per cent. of the undergraduates borrowed no books from the Library, in the following year only 13 per cent. failed to do so. The difference was mainly in the Freshman and Sophomore classes, only 56 and 68 per cent. respectively of the members of these classes being borrowers in the former year, while 80 and 87 per cent. took books in the latter year. Of the 1,851 undergraduates enrolled in the College in 1898-99, 231 failed to register at the Library as borrowers, of these 28 were Seniors, 26 were Juniors, 62 were Sophomores, 90 were Freshmen, and 25 were Special Students, but all of them may have used the reading-room or the class-room libraries freely without their names being recorded on our books.

The students of Radcliffe College are given the use of the Library so far as this can be done without prejudice to the interest of the students of Harvard. In the smaller reading-room two tables are assigned to their use; but we cannot give them free access to our "reserved" collections in the general reading-room. Books which Radcliffe students wish to borrow are sent for daily by a



special messenger, and the books are charged to Radcliffe College Library, not to the individual students. The table below shows that the number of books lent to Radcliffe in this way has declined since the new reading-room was opened and the overnight lending of reserved books ceased.

BOOKS LENT TO RADCLIFFE.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Borrowers . . . .	111	132	108	156	155	167	146	137
Books borrowed . .	886	1,057	1,162	1,672	1,502	1,320	1,191	1,273

During the past year the temporary use of the Library has been granted to 107 persons who have come to Cambridge for the express purpose of study. Such special investigators are always welcome and are given every opportunity to use the Library that is practicable; but it must be confessed that the Library altogether lacks special rooms and conveniences to facilitate study of this kind, a need that is more urgently felt year after year. These guests of the Library have been fewer in number than during the preceding year but more than in any other previous year.

The same may be said of the number of institutions and persons at a distance that have applied for the loan of books. Whenever possible without injury to the immediate interests of Cambridge students and without unwarranted risk, such requests are cheerfully granted, and in the course of the past year 243 volumes have been sent to 74 different applicants (including thirty-three colleges).

The Sunday use of the reading-room shows a slight increase over any previous year. The room is open, to readers only, on every Sunday in term time (but not during the Christmas and spring recesses) from one to half-past five in the afternoon.

SUNDAY USE.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Sundays open . . .	37	37	37	36	24	35	35	35
Users . . . . .	3,284	3,716	3,658	3,634	2,359	5,010	4,635	5,093
Average . . . . .	88	100	99	100	98	143	132	145
Highest No. . . . .	119	135	136	131	140	227	297	260

## SHELF DEPARTMENT.

The work of re-classification has been steadily continued throughout the year. Mr. Carney reports that 26,769 volumes have been permanently placed in the stack (8,391 added to classes previously

arranged and 18,378 newly classified), making 243,869 so placed out of the volumes constituting the Gore Hall collection. The number of newly classified books falls short of the number reclassified the year before (25,034) for two reasons — the greater difficulty of some of the subjects classified, such as the Scandinavian, Minor Romance, Dutch and Ottoman collections, requiring more time in proportion to the number of books handled, and the interruptions in Mr. Carney's work caused by the redistribution of about 10,000 pamphlets as described earlier in this report.

The newly classified sections are the following : —

Navigation . . . . .	303 vols.	Ottoman Empire and	
Botany . . . . .	1,364 “	the Eastern Ques-	
Zoölogy . . . . .	1,923 “	tion . . . . .	1,006 vols.
Natural History . . .	818 “	Educational Reports	1,504 “
Scandinavian . . . . .	1,736 “	Economic Periodi-	
Dutch and Belgian . .	718 “	cals . . . . .	1,044 “
Portuguese . . . . .	264 “	General Periodicals .	7,347 “
Minor Romance . . .	301 “		
			<hr/>
			18,378 “

Economics including about 6,500 volumes is in process of arrangement, and the few remaining sections of science will be immediately classified. The history of the Byzantine Empire and of mediaeval and modern Greece was naturally taken up in connection with the history of the Ottoman Empire and was nearly finished at the close of the year. The “Minor Romance” section above includes Provençal, Catalan, and Rhaeto-Romanic literatures and Roumanian history and literature.

Our general scheme of classification has provided for bringing together all historical and descriptive matter (history, biography, geography, travel, manners and customs) of each country side by side with its literature instead of scattering it in as many different divisions of the Library as is done in the systems in most general use. This arrangement has been found eminently useful and practical. The only exceptions so far made have been (1) in the Provençal, Catalan, and Rhaeto-Romanic literatures, the corresponding historical and descriptive works being with France, Spain and Switzerland respectively, and (2) in the section devoted to the Ottoman Empire which has been made to include the whole Eastern Question and all the wars and diplomatic relations between the Turks and the nations of Europe, but does not include Turkish literature which will more naturally attach itself to other Oriental literatures. Mr. C. W. Ayer who has given unstinted care and interest to this portion of the classification makes grateful acknowledgement to Professors Sheldon and

Grandgent for suggestions received in regard to the treatment of the Romance section, and to Asst. Professor Coolidge whose personal interest in the books relating to Turkey has made his constant advice and watchfulness very helpful. Mr. Ayer, who since joining the Library staff in August, 1896, has arranged the collection of Music and musical literature, and the Italian and Spanish collections, beside the Scandinavian, Dutch and Belgian, Portugese, Minor Romance, and Ottoman collections reported this year, leaves the Library October 1 to become librarian of the Brockton Public Library.

The reclassification having now progressed so far, it may be of interest to give a summary of the contents of the Library with the number of volumes in each division.

*East Stack.*

FIRST FLOOR.	Volumes.
British documents, including Journals of the Lords and Commons, Parliamentary papers of the early part of the century, and the regular sessional papers from 1830 to the present time . . . . .	5,808
Canadian documents . . . . .	731
Chinese documents . . . . .	126
State and city documents of the United States . . . . .	3,303
General periodicals, English, French, and German . . . .	6,439
Moniteur, Journal Officiel, and Allgemeine Zeitung . . .	604
	<hr/>
	17,011
Pamphlets, about 1,600 feet of shelving, estimated at. . .	200,000
SECOND FLOOR.	
Language . . . . .	9,629
Classical Philology . . . . .	4,524
Greek Authors . . . . .	8,286
Latin Authors . . . . .	6,204
Philological periodicals . . . . .	2,066
Harvard Collection (for general use) . . . . .	344
Cataloguers' reference books . . . . .	4,143
	<hr/>
	35,196
THIRD FLOOR.	
American history . . . . .	28,915
American literature . . . . .	5,782
	<hr/>
	34,697
FOURTH FLOOR.	
English history . . . . .	9,960
English literature . . . . .	15,773
	<hr/>
	25,733
FIFTH FLOOR.	
French history and literature . . . . .	16,497
German history and literature . . . . .	9,689
	<hr/>
	26,186

SIXTH FLOOR.	Volumes.
Slavic collection (history, literature, etc.) . . . . .	4,509
Modern Greek collection . . . . .	872
Italian collection . . . . .	8,400
Spanish collection . . . . .	2,755
Portuguese collection . . . . .	273
Minor Romance collection . . . . .	398
Dutch and Belgian collection . . . . .	901
Scandinavian collection . . . . .	2,524
Judeo-German collection, 1,600 pamphlets and . . . . .	450
Turkey and the Eastern Question . . . . .	1,036
	<hr/> 22,118
STAIRWAYS AND PASSAGES.	
Cyclopaedias . . . . .	950
Angling . . . . .	1,060
Carlyle bequest . . . . .	469
Atlases . . . . .	834
	<hr/> 3,313
Maps . . . . .	18,622 sheets.

*West Stack.*

FIRST FLOOR.	
Harvard University collection (printed material relating to the history of the University, its departments and officers) . . . . .	3,034
Harvard University archives (principally manuscript material in iron cases) . . . . .	784
Directories . . . . .	917
Registers . . . . .	855
Newspapers (beside about 1,500 volumes still stored in the basement of Perkins Hall . . . . .	1,060
Unclassified books, law, medicine, theology, ecclesiastical history, bibliography, Oriental history and literature, etc.—recent accessions (since 1877), about 20,000; from the old library (before 1877) about 60,000; altogether estimated at . . . . .	80,000
	<hr/> 86,650

SECOND FLOOR.	
Philosophy . . . . .	7,987
Sociology (including various "Social Questions") . . . . .	2,368
Economics, estimated at . . . . .	6,600
Educational reports . . . . .	1,555
General science . . . . .	234
Natural history . . . . .	868
Zoölogy . . . . .	1,923
Botany . . . . .	1,364
Geology . . . . .	1,217
Mathematics . . . . .	3,276
Astronomy . . . . .	1,253
Navigation . . . . .	303



	Volumes.
Physics . . . . .	1,955
Chemistry . . . . .	1,856
Engineering . . . . .	1,411
Unclassified books, accessions since 1877, estimated at . .	10,000
	<u>44,170</u>

## THIRD FLOOR.

Folklore . . . . .	8,015
Emblems . . . . .	207
Archaeology . . . . .	4,412
Fine Arts . . . . .	5,660
Music . . . . .	4,797
Learned societies . . . . .	5,557
Scientific periodicals . . . . .	8,076
Geographical periodicals . . . . .	1,457
	<u>38,181</u>

*Reading-Room, Delivery-Room, etc.*

Reference books . . . . .	4,142
Bound periodicals . . . . .	3,275
United States Documents . . . . .	3,664
In locked closets . . . . .	500
	<u>11,581</u>

New shelving for newspapers has been built in the one place in the basement of the West stack not already occupied, and this has made it possible to bring back to the Library from the basement of one of the dormitories where they had been stored for several years the volumes of the precious Ebeling collection of early American newspapers and a few other sets much in demand. Some 1,500 volumes however still remain in exile, practically withdrawn from use, and subject to more risk of injury than is right, yet it is impossible to find a place for them in the Library. The new shelving built is a simple form of iron frame devised by Mr. Garfield, with stationary wooden shelves; the cost was scarcely greater than if it had been built entirely of wood. The newspaper volumes lie on their sides instead of standing like other books on edge, a position which is sure to strain the bindings of such cumbersome volumes.

Mr. W. D. Goddard who has given about half his time throughout the year to the care of the class-room and laboratory libraries has continued in charge of the current examination of the shelves in Gore Hall. Instead of going through the library little by little checking off the books by the shelf-list, as was done twice over during the previous year, a more effectual plan for maintaining the shelves in good order has been pursued. A cursory survey of the whole stack occupying generally four afternoons has been made monthly; this has sufficed to make any needed redistribution where

books were becoming crowded, to pick out books that were in need of repair, and to keep an eye upon the general good condition of the whole. A detailed examination of the books has been made three times, twice during the winter and spring to correct displacements and to insure every book then on the shelves being in its right place, and a third time in the early summer with the shelf-lists in hand, the object being not only to correct displacements but to note all books not found on the shelves, which the shelf-list calls for. These are afterwards looked up on the charging-cards at the delivery desk and searched for on the cataloguers' shelves and elsewhere. Those which cannot be accounted for in this way, and do not after two or three months turn up again in their places, are reported missing. Of the volumes reported missing in previous years, of which a careful account is kept, many always appear unexpectedly at a subsequent examination, sometimes after an interval of several years. The result of this year's examination, was the correction of 272 displacements (not a large number considering the number of persons who have access to the shelves), the report of 66 books missing, and the discovery on the shelves of 50 volumes which had been reported missing in previous years. Of these 50 volumes, 30 had been missing a year or less, 11 two years, 5 three years, and 1 each, four, five, six, and seven years. Of the 1,268 volumes reported missing during the last seventeen years, 526 have been recovered. A table showing the details was given in last year's report but need not be repeated here. Mr. Goddard leaves the Library service at the close of the year and takes a position in the Copyright Office in Washington.

## CATALOGUE DEPARTMENT.

The work of the Catalogue Department as compared with previous years is roughly shown by the following table:—

CATALOGUE WORK.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Titles catalogued					
for College Library . . .	8,350	7,564	8,990	9,974	12,276
for Departments, etc. . .	2,008	2,668	2,320	3,026	2,087
Total . . . . .	10,358	10,232	11,310	13,000	14,363
Cards added to Catalogue . .	19,989	27,428	21,282	25,093	22,995

The increased number of titles catalogued for the College Library is in part due to the large number of pamphlets (3,167) for which

only a single card has been written as described above, but this abbreviated and therefore more rapid work was in part balanced in the previous year by the 1,871 titles of pamphlets in bound volumes, which were also catalogued in a briefer way than in the case of books.

The extended report of Mr. Tillinghast, Assistant Librarian, covers many details of the work of the catalogue staff and remains on file as part of the documentary history of the Library. During the winter the services of Mr. John Orne, Jr., the Curator of manuscripts in the Semitic Museum, were secured for work on the collection of Arabic books bought some years ago by Professor Toy, in the East. Mr. Orne wrote out translations of the titles, and such other information about the books and authors as will make it easy to have catalogue cards written at a later opportunity. Mr. Orne also prepared for this Library an account of the Semitic manuscripts in the Semitic Museum.

The number of assistants on the catalogue staff at the close of the year, though greater than at the beginning, is practically the same as it was three years ago, while its present efficiency is not as good as then on account of the loss in the meantime of several cataloguers of long experience, whose places have been supplied by assistants as yet comparatively new to the work. This condition makes the problem of dealing with the large accessions of the last year and the probably still larger accessions of the coming year a very difficult one. Mr. Tillinghast reports at the close of the year 5,323 titles on hand not recorded in the general catalogue, an increase of 458 over the number uncatalogued a year previous, but it must be added that this number does not include the Gurney books and several other large gifts received late in the year which had not reached the hands of the catalogue department when his report was made. Of the 5,323 reported, 3,776 are recent gifts, and of the remaining 1,547 acquired by purchase, 1,300 had come to the Library since January 1, 1899, which shows that we are not seriously in arrears in regard to that part of our accessions which is of the most importance to students, the part bought with Library funds. Mr. Tillinghast points out that the uncatalogued books on hand may always be grouped in three fairly well distinguished classes:—

- (1) The ordinary purchases made on order, and needed more or less urgently for immediate use. With these belong such of the gifts as are of current interest or of special significance.

- (2) Gifts having but slight value as far as immediate usefulness goes, but considered necessary for a great library to keep, if only as a matter of record. These are (*a*) books, or (*b*) pamphlets.

(3) Books of undoubted value and of great interest to a few persons, but of comparatively slight general interest. Such books whether acquired by gift or purchase, ordinarily come to us a considerable number at a time and relate to specific subjects. Such cases in recent years have been the collections of Emblems and Proverbs given by Mr. John Bartlett, the hundred volumes on the Jansenists of Utrecht lately bought, and the books on Turkey given by Mr. Coolidge.

All such uncatalogued books are recorded as soon as received, on rough temporary slips, for the benefit primarily of the Ordering Department, so as to avoid duplication. By a slight change in our methods the treatment of these books will be made more systematic and the inconveniences of an accumulation of uncatalogued books be thus reduced to a minimum. Books of the first class can be catalogued with all necessary promptness, though the less important often have to stand aside for those needed in haste, and may sometimes remain for months on the cataloguers' shelves.

Books of the second class have to renounce any hope of prompt attention; the best we can do with them is to store them on special shelves, number them temporarily in order of their coming and provide them with book-plates so that they may be taken out when wanted, and write for each book with as little ceremony as possible a single card to be inserted in the official catalogue which is accessible to the staff. Pamphlets of this class I have already spoken of.

For the third class this course would not be satisfactory. The books must be assigned their final places in the classified collection so that students who are interested in them may find them easily on the shelves, but inasmuch as these books are thus entered in all detail on the shelf-list (which is itself a form of subject catalogue), the final complete cataloguing is less important and must wait like that of the second group, provided only a single card for each book made hastily from the title-page is put into the official catalogue, while under the proper general heads in the subject catalogue the enquirer is warned that additional material will be found on the shelves.

These groups (the second and third) of "partially catalogued" books must not, however, be allowed to become a permanent incubus. As soon as the strength of the staff will permit, two or more persons must be assigned to this work and continue at it without interruption and without being called off by the demands of other current work. I spoke in my last report of the 1,500 volumes made in the course of the last ten or twelve years by binding up pamphlets together, on the cataloguing of which a beginning was made that summer, but I



regret to say that no further progress has been made, and these "tract volumes" still remain uncatalogued. There is also a large number of books and pamphlets catalogued "short", that is, on author cards only, many years ago which should sometime be finished up. I see no immediate prospect of being able to take up any of this work. Even if we could increase our staff, we have no suitable place in which the additional members could work. The need of an increase in the Library building is again evident from this point of view.

Coöperative work with other libraries in cataloguing the articles in many serial publications has continued on the same lines as described in last year's report. The list of publications to be analyzed was increased in January by about sixty, but fourteen were dropped which it was found not worth while to continue. The number of titles received during the year was 2,791, of which this Library has contributed the cataloguing of 569. For the present the cards, amounting to about 8,000 for both author and subject entries, have been kept in drawers of their own. The question must soon be decided whether they should remain separate or should be incorporated with the rest of the catalogue.

An attempt has been made to preserve references to the more important obituary notices that come under our observation. This is done by means of cards specially prepared with printed headings upon which the name, dates of birth and death, and references to periodicals may be conveniently noted; the cards are then inserted in the card catalogue in alphabetical order among other cards. Such notices are often difficult to come across when wanted, and this seems to be an easy way of preserving a record of them with very slight labor. Notes of the same kind made some years ago are being copied on the same special cards, and are also then distributed in the catalogue.

#### ORDERING DEPARTMENT AND FINANCIAL CONDITION.

The following table shows the income of our book-funds, receipts from other sources for the purchase of books, and expenditure for books during the last six years.

The fortunate increase in our income from book-funds is due in part to Mrs. Philips's gift of the Kenneth Matheson Taylor Fund for English literature, but mainly to the assignment by the Corporation of \$100,000 of the Pierce Fund to the purchase of books, and to an increase in the general rate of interest. To the last circumstance is also due the unexpectedly large balance carried forward of over

INCOME AND EXPENDITURE.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
From book Funds, —						
Balance from previous year	\$2,288	\$3,509	\$4,131	\$2,864	\$2,303	\$737
Income of the year . . . .	15,953	14,916	15,189	13,991	13,010	18,306
Total available . . . .	18,241	18,425	19,320	16,855	15,313	19,043
Spent for books . . . .	14,732	14,294	16,456	14,552	14,576	14,010
Balance to next year . . .	3,509	4,131	2,864	2,303	737	5,033
Special gifts, sales, etc. —						
Balance from previous year	1,114	1,184	1,396	1,205	1,176	839
Received during the year .	446	534	2,958	349	506	3,906
Total available . . . .	1,560	1,718	4,354	1,554	1,682	4,745
Spent for books . . . .	376	322	3,149	378	843	1,805
Balance to next year . . .	1,184	1,396	1,205	1,176	839	2,940
Total spent for books, —						
College Library . . . . .	\$15,108	\$14,616	\$19,605	\$14,930	\$15,419	\$15,815
Department Libraries* . .	4,355	5,028	5,184	4,070	5,322	3,869
Total . . . . .	\$19,463	\$19,644	\$24,789	\$19,000	\$20,741	\$19,684

\$5,000. It should be noticed, however, that since an unusually large number of books were received in the summer, the bills for which could not be paid before the close of the financial year, this balance should be reduced by about \$1,500, the amount of these bills. Probably the Library's estimate of orders sent was unnecessarily cautious, as was the Treasurer's estimate of expected income, but the \$14,000 actually spent, plus the \$1,500 of bills carried over, is not far below the \$16,000 which we thought we had to spend. A balance a good deal larger than what we carried forward last year (\$737) is desirable as a protection against inequalities of income and expenditure, and the possibility of increase in several of the items of the annual appropriation resulting from the present condition will be welcomed by many of the professors who have long considered the sums appropriated to their use insufficient for the needs of their departments.†

Although the most pressing need of the Library is for enlargement of its building, yet the establishment of permanent funds for the

\* Not including the Law School, which spends from \$3,600 to \$11,000 a year for books, but does not order through the College Library.

† The amount of the present balance has made it possible for the Library Council to appropriate \$2,000 toward the purchase of the Riant library, an account of which I shall be able to give in my next report.

purchase of books in special fields is always welcome, and will always be a favorite form of benefaction, as it associates the donor's name so intimately and so pleasantly with the daily use of the Library, and at the same time assures continuous enrichment of the Library in a single specified direction. Among the subjects already provided for in this way are Greek, Latin, and Arabic literature (by the Constantius and Salisbury funds), Political Economy and Sociology (by the Homer and Wolcott funds), Politics and Fine Arts (by the Sumner bequest), Mathematics, Astronomy, and Natural Philosophy (by the Farrar and Haven bequests), "Intellectual and Moral Sciences" (by the Walker bequest), Spanish history and literature (by the Sales bequest), and English literature (by the Taylor fund just received). All the other modern literatures, all departments of science except Physics and Astronomy, and American history, Ethnology, Folklore, Music, and Sanskrit among other subjects await endowment.

The work of the Ordering Department, in charge of Mr. Potter, is summed up in the following table:—

WORK OF ORDERING DEPARTMENT.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
New orders, —					
Total received and examined . . . .	7,820	5,744	4,152	6,687	7,049
Already owned or ordered . . . . .	2,213	1,363	964	1,383	1,712
Forwarded . . . . .	5,609	3,798	3,016	3,746	5,010
Estimate of cost, —					
For the College Library . . . . .	\$12,445	\$9,223	\$5,970	\$6,765	\$9,510
For Departments . . . . .	3,240	4,556	3,245	3,306	1,942
Total estimated cost . . . . .	15,685	13,779	9,215	10,071	11,452
Shipments received from abroad . . .	27	28	22	31	39
*No. of vols. bought for College Lib. .	5,203	5,854	3,531	4,335	6,045
†Total gifts examined and passed on .	11,873	12,811	13,475	14,011	19,544

The books bought at the Sehefer sale, though received as gifts, are included under "orders forwarded" in the above table, inasmuch as the labor and responsibility of the purchase fell upon the Ordering Department.

Since the middle of the year all our importations from abroad have come through the American Express Company instead of by ordinary freight as previously. The terms made by the express company are such that we expect to be able to import our books in smaller lots,

\* Excluding volumes formed by binding periodicals and pamphlets.

† Including both volumes and pamphlets. See p. 216.

and at correspondingly more frequent intervals, without increased cost.

Mr. Potter was in England for three months in the summer on leave of absence, and, while in London, was able to secure many books for which we had had orders long outstanding with our regular agent. He also picked up for the English department about eighty early quarto editions of the seventeenth century English dramatists, a class of books for which we have been spending a small sum annually for some years. Other special purchases of the year have been: about eighty volumes of the proceedings of state constitutional conventions, which brings our collection of these documents up to about 200 volumes; an extensive collection of Dreyfus literature; a special purchase of Scandinavian books for which a favorable opportunity presented itself; a collection of 100 volumes relating to the history of the Jansenists in Utrecht; 44 volumes of the works of mediaeval Latin authors; and about 100 volumes of English periodicals to complete imperfect sets. A copy of Increase Mather's *Solemn advice to young men*, 1695, published during the author's presidency of the College, was offered to us, and as it could be had at a reasonable price and no other copy is certainly known to exist, it was thought best to secure it for the College Library, although we do not generally feel justified in buying books of simply bibliographical or personal interest. I should be glad to feel that from some special source purchases of this kind could from time to time properly be made.

During Mr. Potter's absence the work of the Ordering Department was in charge of Mr. P. H. Tufts, who has been employed on the Library staff since 1893, and has now received from the Corporation a permanent appointment.

#### THE ARCHIVES AND HARVARD COLLECTION.

Mr. William Garrott Brown, the Deputy Keeper of the University Records, reports in regard to the two collections under his charge that the University Archives, comprising in the main manuscript material, such as records and correspondence relating to all departments of the University, now contain 575 volumes and 209 boxes and bundles, and that the Harvard University Collection, made up of the publications of the University and its departments and a great variety of other material illustrating Harvard history and life, now numbers 2664 volumes and 370 boxes and bundles. Among the archives should be found the original manuscripts of all essays for which prizes are awarded, the theses of candidates for the higher



degrees, and the "parts" of the Commencement speakers. Much difficulty has been experienced in former years in getting possession of these papers and the file is by no means complete, but under the present rules theses and prize papers are fairly sure of finding their way to the Library, theses being deposited necessarily in the College office, and prize money not being paid over by the Bursar until the winner presents a certificate from Mr. Brown that his paper has been deposited. Commencement parts, however, we have no hold upon, and some further provision is needed to insure their being transmitted to the archives.

The Harvard University Collection requiring to have its shelf-list rewritten, advantage was taken of the opportunity to make some changes of arrangement. The space now available for this collection is already crowded and very inconveniently disposed. Both collections should be shelved in a room of their own, which should at the same time be the office of the Deputy Keeper. At present the archives are in a series of iron cases at one end of the west stack, the book collection is in the last row at the other end of the stack with shelving running up to a height of nine and a half feet, while the Deputy Keeper's table is in a crowded corner of another floor, equally distant from both the collections under his charge.

In regard to his other duties Mr. Brown reports as follows: "Apart from the care of his two collections, the securing and entering of accessions, and the routine correspondence, the Deputy Keeper has had to give much of his time to several important subjects requiring considerable research.

"Perhaps the most important of these was the record of the services of Harvard men in the war with Spain. In prosecuting the inquiry it was necessary to handle a great mass of correspondence. More than a thousand letters, reports, etc., have been received, mounted, and digested. No fund has been placed at the writer's disposal, and he has been expected to confine himself to such methods of investigation as would involve no considerable expense. Results of his investigation have appeared from time to time in the Harvard Graduates Magazine, in the President's Report for 1897-98, and elsewhere. He still occasionally obtains fresh information; in the nature of things it is impossible to say at any time that such an inquiry is completed. The continuance of hostilities in the Philippine Islands and the enlistment and re-enlistment of various Harvard men for service there render it inexpedient to present any official record for some time to come. For help rendered in this task grateful acknowledgement is made to the War Department in Washington,

to Dr. Francis H. Brown (H. U. 1857), to the editors of the Harvard Graduates' Magazine and the Harvard Crimson, to Mr. James A. Noyes, Editor of the Quinquennial Catalogue, to the secretaries of the various classes and Harvard clubs, and to many others, graduates and undergraduates, whose names cannot be set down.

"Another inquiry of interest was undertaken at the request of Mr. Samuel Hoar, attorney for the College in its suit against the City of Cambridge for the return of taxes on certain buildings. The investigation covered the usage of Harvard College from its founding, of the English universities, and the French lycées, in the matter of housing officers and feeding students.

"At the request of the editor of the American Catalogue the writer has prepared a summary list of the publications of Harvard University since its foundation; it will be published in connection with the American Catalogue. He has also edited for the Harvard Memorial Society an official guide to the University. This work, however, was done out of office hours.

"In general, the Deputy Keeper is now required to give fully half his time to researches and reports on various questions submitted to him by University officers and others. He has, in consequence, been obliged occasionally to ask for help on the simple routine work of his department. It seems likely that the demand on him for such services will increase, rather than diminish."

WILLIAM COOLIDGE LANE,  
*Librarian.*

## THE GRAY HERBARIUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—During the year 1898–99 the accessions to the Gray Herbarium, both by gift and purchase, have been unusually large and valuable. The more noteworthy collections received by gift or in exchange were: From Mr. Charles E. Faxon, 6,608 specimens of carefully classified phanerogams and vascular cryptogams, collected chiefly by the late Edwin Faxon and representing for the most part the larger and more difficult genera of the New England flora (*Aster*, *Solidago*, *Salix*, *Carex*, *Potamogeton*, etc.); also (by estimate) about 5,000 specimens of bryophytes and thallophytes; from Mr. George Vanderbilt, through Mr. C. D. Beadle of the Biltmore Nurseries, 245 specimens of phanerogams of the Southern Atlantic states; from Miss Alice Eastwood, of the California Academy of Sciences, 210 rarer plants of California and Lower California; from Professor P. MacOwan, of Cape Town, 2 centuries of his critically identified Herbarium Austro-Africanum; from Professor John Macoun and Mr. J. M. Macoun, of the Canadian Natural History Survey, 261 plants of British America; from the New England Botanical Club, 492 miscellaneous duplicates.

Early in the year negotiations were completed for the purchase of the Compositae from the herbarium of the late Dr. F. W. Klatt of Hamburg, a well-known specialist in this group. This collection, which is especially rich in rare tropical types, was received in excellent condition in December, 1898. It contains about 11,000 specimens, together with numerous drawings, tracings, and sketches of types in European herbaria. From an estimate, based upon a partial count, it is inferred that from this accession alone the Gray Herbarium has, during the past year, acquired about 60 genera and 1,500 species not hitherto represented on its shelves.

Among the other purchases of the year the following are the most valuable: From Mr. C. A. Purpus, 534 plants of southern California; from Mr. A. A. Heller, 280 plants chiefly of the states Washington and Texas; from Professor D. T. MacDougal, 376 plants of Arizona, from Professor A. Nelson, 431 plants of Wyoming; from Professor H. Pittier, 156 plants of Costa Rica.

The larger collections received for identification were: from Mr. C. G. Pringle, 508 plants of central and southern Mexico, collected with great discrimination and including a high percentage of new and

noteworthy species; from Professor L. A. Lee, 165 plants of Labrador, collected on a recent exploring expedition sent out by Bowdoin College; from Professor E. L. Moseley, 315 plants of northern Ohio; from Mr. Charles C. Deam, 228 plants of central and southern Mexico; from Mr. W. C. Cusick, 334 plants of Oregon; from Professors C. Conzatti and V. Gonzáles, 268 plants of Oaxaca and Vera Cruz, also including many new or critical species; from Dr. J. N. Rose of the U. S. National Museum, an extensive and valuable suite of specimens collected by himself and by Mr. E. W. Nelson in central and western Mexico; from Dr. Edward Palmer, 581 plants of Saltillo, Mexico, and vicinity.

The accessions from all sources have amounted to 28,903 specimens, a number considerably larger than recorded for any previous year. Notwithstanding the smallness of the herbarium staff the greater part of these large accessions have already been sorted, the duplicates having been removed for use as exchanges, and the remaining material prepared for incorporation in the organized collection, to which during the year 10,882 sheets of mounted specimens have been added.

To increase the accuracy of the herbarium records and give a means of answering numerous inquiries as to the extent of the collection, an enumeration of the sheets in the organized portion of the Gray Herbarium was made at the end of the academic year, showing that on August 31st, 1899, the collection contained 301,582 sheets. Of these about 50% hold a single specimen while the remainder bear 2 to 5 specimens.

New cases with a capacity of 16,000 sheets have been placed on the ground floor of the main room of the Herbarium.

During the year 218 volumes and 304 pamphlets have been added to the Library of the Gray Herbarium. Of the volumes 96 were transferred from Gore Hall. The librarian, Miss Day, has prepared a careful and helpful bibliography of New England local floras including 245 titles (more than twice the number in any previous list of this sort). In connection with this work special attention has been given to the acquisition of desiderata in this department of the library.

Mr. Pringle's exhaustive exploration of the Mexican flora has been continued with energy and fruitful results notwithstanding the interruption due to tropical fevers from which he and his assistants have suffered severely.

The subscription for the Asa Gray Memorial Fund, which by September 1st, 1898, had reached \$9,650, was continued through



the year and by June 29th, 1899, had through the liberality of many new contributors increased to \$32,511, a sum more than sufficient to secure the conditionally offered endowment of \$20,000 for the Asa Gray Professorship of Systematic Botany. The success of the Herbarium in thus adding more than \$50,000 to its permanent funds, has been due to the well directed efforts of an energetic Visiting Committee, to the activity of several devoted friends of the Department, and to the cordial response of more than ninety patrons, of whom a list\* is given in the accompanying report of the Treasurer.

During the year the staff has published 22 papers of which the more important are as follows:—

Rattlesnake-plantains of New England; by M. L. Fernald, *Rhodora*, i, 2-7, t. 1.

Some *Antennarias* of northern New England; by M. L. Fernald, *Rhodora*, i, 71-75.

Contributions from the Gray Herbarium, n. s., No. xv; by M. L. Fernald, *Proc. Am. Acad.* xxxiv, 485-503; including I. *Eleocharis ovata* and its American allies; II. *Scripus Eriophorum* and some related forms.

Contributions from the Gray Herbarium, n. s., No. xvi; *Proc. Am. Acad.* xxxiv, 507-578; including I. Revision of the genera *Montanoa*, *Perymenium*, and *Zaluzania*, by B. L. Robinson and J. M. Greenman; II. Synopsis of the genus *Verbesina*, with an analytical key to the species, by B. L. Robinson and J. M. Greenman; III. Some new species, extended ranges, and newly noted identities among the Mexican phanerogams, by J. M. Greenman.

Revision of the genus *Guardiola*; by B. L. Robinson, *Bull. Torr. Club*, xxvi, 232-235.

Further notes on New England *Antennarias*; by M. L. Fernald, *Rhodora*, i, 150-155.

Contributions from the Gray Herbarium, n. s., No. xvii; by B. L. Robinson and J. M. Greenman, *Proc. Bost. Soc. Nat. Hist.* xxix, 87-108; including I. Revision of the genus *Gymnolomia*; II. Supplementary notes upon *Calea*, *Tridax*, and *Mikania*.

The local floras of New England; by M. A. Day, *Rhodora*, i, 1899.

B. L. ROBINSON, *Curator*.

\* Of the \$32,511 subscribed, \$30,936 were paid before July 31, 1899, the end of the financial year of the University. The subscriptions which have been paid later than this will be recorded in the next report.

## THE BOTANIC GARDEN.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As Director of the Botanic Garden, I have the honor to present the Annual Report for the year, 1898–99.

Near the close of last year, I requested the Corporation to relieve me of a part of my duties at the Garden, by appointing an Assistant Director. This request was granted, and the person suggested by me for the position, Mr. Oakes Ames, A.B. ('98), was selected. Mr. Ames entered upon his work about the middle of January last. Naturally at that season of the year, his attention was at first directed towards certain improvements in the arrangement of our greenhouse plants, rendered possible by the construction of the new range. The changes proposed by Mr. Ames were somewhat more radical than could have been undertaken at any earlier period in the history of the Garden; but all of them were carefully planned by Mr. Ames, and thoroughly executed by the Head-Gardener, Mr. Cameron.

The two houses nearest the lecture-room were given to the Garden in 1872 by the constant friend of the Department, Mr. Hunnewell. Even after the lapse of more than a quarter of a century, they were found to be in such good condition that they lent themselves readily to the improvements suggested by Mr. Ames. In the first house, iron and slate benches of a more convenient arrangement than the old wooden ones were introduced, and the "lean-to" in the rear was wholly changed for the better. The second house, which had been used ever since it was built for our fine Australian plants, seemed well adapted for the conservatory culture of Cactaceae and other fleshy plants, which are now brought together in contiguous houses in a convenient and effective manner, and are finely arranged for study and for attractive display. House number three, formerly devoted to Mexican plants and Ferns, was selected for the collection of economic plants, and in this section, they constitute one of the most attractive features of our Garden. The Palm-house remains substantially without change. The section just beyond the Palm-house, heretofore assigned to our stove-plants, was regarded as better adapted to a choice collection of Ferns and sub-tropical species. To the beautiful new range, Mr. Ames transferred our stove-plants and Australian species, affording conditions for them far more favorable than any to be had in the lower range. He has

succeeded in forming collections which attract a large number of visitors.

Our Garden is justly called upon to provide a small number of cut-flowers and decorative plants for a few academic occasions. Funds have been procured for slightly enlarging this department of the Garden, but this enlargement is at no sacrifice of its scientific features. The two sections now given up largely to decorative plants, are visited by many who are interested in horticulture, and who may not unreasonably be expected to encourage by their aid this important improvement.

For some years the very large number of plants forced into bloom for use by our students in the spring have been cultivated under the direction of Mr. B. M. Watson, at the Bussey Institution. The transportation of material, especially for employment early on Monday morning, involved so many difficulties that Mr. Ames sought some means of furnishing a part or the whole of the supply from the Garden here. He has had pits and frames constructed which will answer every purpose, and the experiment begins under favorable conditions.

I cannot bring to an end the arrangement which has existed long between Mr. Watson and our Department without expressing our deep obligations to him for his uniform courtesy under circumstances which must often have tried his patience severely, and I wish to bear my testimony to the fidelity and great efficiency with which he has carried out every part of his contract from first to last.

Certain changes have been introduced in the arrangement of our out-of-door plants. Concerning these it is too early to pronounce definitely, but they seem to be real improvements. They have been considered with great care, and are parts of a plan having a wide scope. In all these changes, both indoors and out, the Directors have had the hearty coöperation of the Head-Gardener.

Mr. Cameron, the Head-Gardener, makes the following statement relative to the weather, from August 1898 to August 1899.

“During August and early autumn the weather was exceptionally good and enabled us to keep the plants in excellent condition. Out-of-door work was continued until the great snowstorm of November 26, 1898. Although this snowstorm was very heavy, little loss was sustained by the trees and shrubs in our Garden.

The winter was the severest for many years. We had many heavy snowstorms and much prolonged cold. The spring was unusually late. It was followed by a very dry summer, which was hard on our herbaceous plants. Although we did not lose many plants, the Garden was not so interesting or showy as when we have a season with well distributed rainfalls during the hot months.”

For the last few years the Garden has provided plants and flowers for the classes in Radcliffe College. A small number of specimens are also reserved at the Garden for the Radcliffe practice in plant physiology. At present this arrangement works fairly well and without any loss to the Garden.

The teachers in the public schools of Cambridge and vicinity have been informed that they can have from our Garden such specimens for illustrating their instruction in botany as can be spared without detriment to the University, and a few avail themselves of this privilege. Ordinarily, in summer we could provide for about ten times as many applicants as we have ever yet had. The late John Cummings of Woburn was much interested in this side of the activity at the Garden, and we have felt that the income from his gift to the general funds of the Garden might appropriately be assigned to the small extra expense attending the cultivation of such specimens.

The summer class in botany at the Garden carried on its studies with an abundance of material placed at its disposal. Mr. Olive, the instructor, reports 21 in attendance, mostly teachers from high schools and academies.

The Overseers' Committee to visit the Botanical Department recommends that some arrangement be made by which any undergraduate who takes the summer course in botany and then continues systematic botanical studies independently during the vacation, and at the beginning of the fall term passes with credit an examination on this work, may have such study count as a whole course. Instead of this, at present, the student who takes the summer course is permitted, on satisfactory examination, to have it count only as a half course. In view of the increasing number of young men who desire to carry on a small but regular amount of study during our long vacation, this suggestion has much to commend it.

Exchanges have been conducted as usual, and on the whole have been satisfactory.

To give increased security against fires in our greenhouses, we have introduced a telephone.

The laboratories at the Garden are rendered more effective than formerly by the equipment provided by the generous donor of the Memorial Range. Original investigations have been conducted in the houses during the past year with satisfactory results. It was the wish of the anonymous giver of these fine houses that they should be beautiful, permanent, and useful. From the experience of the past year, there is every reason to believe that this last object has been fully secured. The range promises to be of great use to our advanced students in the study of the life of plants.



Concerning the laboratories, library, and classes at the Botanical Museum, there is little new to report, except a slight increase in the equipment of the laboratories, and the addition of a considerable number of books.

The exhibition rooms on the third floor have undergone few important changes. The Ware collection of Blaschka glass models and been increased by one consignment of new specimens. In July, Miss Ware visited the studio of Mr. Rudolph Blaschka, near Dresden, and there made a contract with the artist for a continuance of his work for the University. The first shipment of models was received in Cambridge in 1886. From that date down to July of the present year, more than 600 models of plants in flower, and more than 3,000 details of structure and magnified sections, have been sent to us from the studio of this tireless artist. Since the death of the elder Blaschka in 1895, the studio has of course not produced so many models each year, but there has not been the slightest falling off in quality.

In many respects of technique, the later are better than the earlier productions, and recent improvements in certain features promise even more surprising results. Up to January 1900, the date at which the previous contract terminates, all of the business details connected with the transaction have been in my hands. With the beginning of the new contract, Miss Ware is to relieve me of the charge of these business details, so that I can devote more time to the development of the collection itself.

The extensive collection of fossil plants presented by Mr. Alexander Agassiz to the Botanical Department, has been stored for some years in one of the large basement rooms, where it has received great care from Dr. Robert T. Jackson. During the year, Mr. Elliot C. Lee gave to the Department the sum of \$3,000 for the construction of cases for the better preservation of these fossils, and towards their proper arrangement. In his letter of gift, Mr. Lee expressed the wish that this money should be regarded as presented by his father, who for many years had been the Chairman of the Botanical Committee.

This timely benefaction by Mr. Lee has enabled Dr. Jackson to arrange the collection in such a manner as to render it now available for specialists in palaeontology.

Dr. Jackson's Report is herewith given : —

“The greater part of the collection of fossil plants has passed through the hands of the late Professor Leo Lesquereux, the Nestor of palaeobotany in this country. The fact that they have been identified by this authority, and contain many of his types and

figured specimens adds greatly to the value of the collection. It was the general practice of Professor Lesquereux to number specimens and write the identification and locality in a book catalogue, the specimens themselves not being labeled. It was a matter of the highest importance to the Museum therefore to receive in March of this year the original Lesquereux catalogues of this collection. The catalogues were sent by Mr. R. D. Lacoe of Pittston, Pa., to whom grateful acknowledgments are hereby tendered. One of the catalogues, a book of one hundred and sixty pages, is a catalogue of the carboniferous plants, and is retained in the Museum. The other book contained catalogue lists of specimens from many museums. Those pertaining to this Museum were copied, and then the book was returned.

Last year a series of nineteen cases for holding the collection was built, and this year, through the generosity of Mr. Lee, fifty-six more cases were built. These cases have a holding capacity of 1,514 trays. The whole collection has been placed in the cases, and is accessible for further work in arrangement and for study. A limited number of massive silicified specimens were not put in cases on account of their bulk and weight.

A brief statement of the extent of the collection as it stands is as follows. The trays measure  $17 \times 26$  inches, inside measure, and are practically all full.

Plants.	Trays.	Plants.	Trays.
Cambrian . . . . .	4	Triassic . . . . .	13
Ordovician . . . . .	36	Jurassic . . . . .	15
Silurian . . . . .	16	Cretaceous . . . . .	235
Devonian . . . . .	39	Tertiary . . . . .	103
Subcarboniferous . . . .	12	Pleistocene . . . . .	4
Carboniferous . . . . .	663	Not distributed . . . . .	20
Peruvian . . . . .	7		
		Total . . . . .	1,167

From the fund given by Mr. Elliot Lee, the following material was purchased to fill gaps in the collection: From James Lomax of Bolton, England, forty-six choice sections of carboniferous plants, mounted in balsam, for study of microscopic structure. From F. Krautz of Bonn, Germany, thirty-two specimens of mesozoic and tertiary plants. From B. Stürtz of Bonn, Germany, forty specimens of carboniferous, mesozoic, and tertiary plants.

The Museum received a gift of a few specimens of fossil plants from the Boston Museum. These are mostly silicified wood from the tertiary.

The Economic Museum continues to grow. During part of the year it has been faithfully cared for by J. B. Dandeno, A.M., Assistant in Botany. Original investigations and the preparation of illustrations are steadily progressing.

In the early summer, Mr. E. F. Atkins, of Belmont, presented to the Department, the sum of \$2,500, — \$2,000 of which was to be used towards a travelling fellowship in economic botany. By the terms of the gift, the holder was to visit certain stations in eastern tropics,

where experiments in the improvement of economic (tropical) plants, especially the sugar-cane, are now in progress. To this fellowship was appointed Dr. E. Mead Wilcox, Ph.D., Harvard, 1899. He entered upon his duties early in July. It is the hope of Mr. Atkins that the holder of this fellowship may be able, on his return, to prosecute researches in Cuba looking towards the improvement of the sugar-cane. Mr. Atkins has secured the hearty coöperation of the Director and the Assistant Director of the Harvard Botanic Garden, in the conduct of experiments in the West Indian Islands, not only with regard to sugar-cane, but also other economic plants. Mr. Atkins desired that \$500 of this gift should be used towards the preparation of an exhaustive bibliography of the sugar-cane. This work is now in progress.

The working library at the laboratories has been increased by about 300 books during the year.

The Committee of Overseers on the Botanic Garden and the Botanic Museum, was increased last year by the addition of Miss Mary Lee Ware, whose generous gifts of money and time for the advancement of the Department are already known from the previous Annual Reports. The Committee feels itself strengthened by this addition to its members.

In the last Annual Report, allusion was made to the great loss the Department had sustained in the death of the former Chairman of the Committee, Col. Henry Lee. In the spring of this year, we lost another member of our Committee, Mr. John L. Gardner. Mr. Gardner attended regularly the meetings of the Committee, and expressed his interest in certain phases of the work of the Department. He was particularly attracted towards the economic aspects of botany, and had favorably considered plans with reference to the Economic Museum. His sudden death left these plans incomplete. To the Director of the Garden, Mr. Gardner was of great assistance, not only by his contributions to the funds of the Department, but also by his judicious advice relative to some points of business.

The Director is under great obligations to the Committee appointed by the Overseers to visit the Garden and Museum. All of them have realized the difficulty of carrying on the establishments with such a slender income as the Department has, and they have aided materially in lightening the burden. Before long they will be asked to aid by their advice and influence in the increase of our funds to the point which appears to be demanded by the claims on the service of this department of the University.

GEORGE LINCOLN GOODALE, *Director*.

## THE ARNOLD ARBORETUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to submit the following report on the progress and condition of the Arnold Arboretum during the year ending July 31st, 1899:—

The generosity of members of the Visiting Committee and other friends of this Department provided late in the year a construction fund of \$30,000, available for completing the grading, draining, and planting of the Arboretum. This work was begun in July; it can be finished during the next academic year (1899–1900), and at the end of the century the construction of the Arboretum should be essentially finished as far as it is possible to complete a public scientific garden, where new requirements for study and enjoyment constantly demand changes and modifications which must be provided for from the income of a sufficient endowment. Such an endowment the Arboretum still needs, and I repeat the statement made in my annual report two years ago, that it is impossible to maintain this establishment, which is now one of the largest scientific gardens in the world, on its present income, and that if it is to do the scientific work for which it was founded and is now equipped, and to broaden its influence in popular education and by research, exploration, and publication, it should have an endowment of one million dollars.

The Park Commissioners of the City of Boston, realizing the value of the Arboretum as a part of the municipal park system and its educational and artistic value to the community, have lost no opportunity during the last three years to aid me in its development and construction. During the year they have carried on energetically the work of road-building and grading in the Peters Hill extension and have erected handsome and substantial iron gates at the five entrances to the original Arboretum. There is now every reason to believe that the construction work in the Arboretum assumed by the City of Boston under its contract with the President and Fellows will be finished before the end of the next academic year.

The planting of trees to protect the boundaries of the Peters Hill extension has been begun during the year, and a large amount of material has been accumulated in the nurseries to use next year for this purpose.

The interchange of plants and seeds with other horticultural and botanical establishments has been continued during the year. There have been 9,947 plants (including grafts and cuttings) and



1,185 packets of seeds distributed as follows: To the United States, 9,617 plants and 666 packets of seeds; to Canada, 60 packets of seeds; to the West Indies, 5 packets of seeds; to Great Britain, 260 plants and 118 packets of seeds; to the continent of Europe, 70 plants and 217 packets of seeds; to Japan, 101 packets of seeds; to the East Indies, 12 packets of seeds; to India, 6 packets of seeds. There have been received during the year 3,471 plants (including cuttings and grafts) and 93 packets of seeds.

During the year 1,264 sheets of dried plants have been added to the herbarium; and the library has received by gift 682 bound volumes, including a number of complete sets of periodicals, and 362 pamphlets.

The students of trees have long felt the need of a bibliography of the literature of the subject, and it has been decided after consultation with Miss Bradley to devote the income of the fund presented by her to the Arboretum in memory of her father, William L. Bradley, to the preparation of such a work, which has now been placed in charge of Mr. W. G. Forsyth, a trained bibliographer and librarian. This bibliography, based primarily on the library of the Arboretum, is expected eventually to embrace the titles of the books and papers in all languages in any way devoted to trees and shrubs and published before the end of 1901. The preparation of such a work is necessarily slow, and ten years does not seem an unreasonable time in which to get it ready for the printer.

During the year the twelfth volume of *The Silva of North America* has been published. When the first volume of this book appeared in October, 1890, it was believed that it could be completed in twelve volumes. The botanical activity which has existed in all parts of the country during the last ten years, and the increased facility for field work which has followed the recent growth of railroads in the West and South, have brought to light species and varieties of trees which were not recognized when this work was begun, so that at least one supplementary volume with numerous illustrations will be needed adequately to make known the trees of the continent.

During the spring months the usual course in dendrology was given by Mr. J. G. Jack to a class of men and women, chiefly composed of teachers.

I take this opportunity to express my thanks to the Trustees of the Massachusetts Society for the Promotion of Agriculture for their annual grant of \$2,500 for the purposes of the Arboretum, and to the members of the Visiting Committee for their wise and generous support.

C. S. SARGENT, *Director*.

## THE CHEMICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—No changes were made in the courses of instruction offered for the year or in the instructors in charge of these courses.

The number of students in the several laboratory courses during the year and in June, 1898, was as follows:—

	October, 1898.	January 1st, 1899.	June 1st, 1899.	June 1st, 1898.
Chemistry <i>B</i> . . . . .	78	71	60	68
Chemistry 1 . . . . .	310	288	263	293
Chemistry 3 . . . . .	111	106	101	98
Chemistry 4 . . . . .	39	34	28	24
Chemistry 5 . . . . .	22	16	13	24
Chemistry 6 . . . . .	12	11	10	9
Chemistry 9 . . . . .	4	4	..	..
Chemistry 10 . . . . .	..	..	4	10
Chemistry 20 <i>a</i> . . . . .	5	5	5	5
Chemistry 20 <i>b</i> . . . . .	9	9	9	5
Chemistry 20 <i>c</i> . . . . .	4	4	4	3
Chemistry 20 <i>d</i> . . . . .	3	3	3	2
Special . . . . .	1	1	1	4
Total . . . . .	598	552	501	545

The number of students in Descriptive Chemistry (Chemistry 1) was decidedly less than in the previous year, so that all applicants received desks at once; there were, however, but three places then vacant. For some reason the number of those who were obliged to withdraw from the laboratory during the year was unusually great, and our numbers in June were consequently smaller than for several years.

The scientific work of the laboratory was carried on as usual. The following investigations were made under the direction of Professor Jackson: Mr. W. Koch continued the study of the orthobenzoquinone which he had prepared in solution in the previous year; all attempts to isolate the body failed, but several of its derivatives were studied; some strange derivatives of tetrabromorthoquinone were also made and partially investigated before the close of the year; Mr. R. W. Fuller determined the constitution of dialkylcyanamides made from the silver salt of cyanamide; Mr. R. B. Earle obtained a dibromdinitrobenzol by the action of sodic sulphite upon tribromdinitrobenzol, and also studied the corresponding trinitro

compounds; Mr. W. P. Cohoe determined the constitution of meta-dibromdinitrobenzol, and prepared several of its derivatives; Mr. F. H. Gazzolo discovered three new series of colored salts derived from trinitrobenzol or trinitroanisol, and made important contributions to the knowledge of the constitution of bodies of this class; Mr. D. F. Calhane completed the study of the constitution of  $\alpha$ -dibromdinitrobenzol which had been begun in the previous year by Mr. P. M. Wheeler; he also discovered a third ( $\gamma$ ) isomeric form and determined its structure; Mr. I. H. Derby continued his study of ferrous iodide and investigated several of its derivatives.

Professor Richards finished a series of determinations of the atomic weight of calcium, showing that material obtained from Italy does not differ in its quantitative relations from that found in America, and that the usually accepted value of this atomic weight is probably too low; he also devised a simple form of electric drying oven. The following investigations were made under his direction: Mr. G. P. Baxter finished his determination of the atomic weight of cobalt, confirming his earlier work; he also obtained some interesting results (55.88) for the atomic weight of iron, and determined the occlusion of hydrogen by various metals under varying conditions; Mr. G. N. Lewis measured the potentials and temperature coefficients of a number of galvanic cells with two solvents and made some corresponding conductivity determinations of alcoholic solutions; Mr. B. S. Merigold continued his study of the atomic weight of uranium; Mr. G. W. Heimrod succeeded in applying an improvement to the silver voltameter which materially increases the accuracy of its results; Mr. E. H. Archibald studied the growth of crystals; Mr. J. E. Churchill continued his accurate measurements of the transition temperatures of crystallized salts; Messrs. R. P. Cushing and C. F. McCaffrey studied interesting cases of "inclusion" during the process of precipitation; and Mr. E. J. Wolbach made a number of new metallic derivatives of hexamethylene tetramine.

Dr. Torrey continued his work with Mr. O. F. Black upon bodies formed from mucobromic acid by the action of potassic nitrite.

Professor Hill studied several derivatives of nitromalonic aldehyde containing nitrogen. The following work was done under his direction: Mr. J. P. Sylvester completed his investigation of certain sulphonic acids of the furfuran group; Mr. A. S. Wheeler prepared and studied the two isomeric acids which are formed by the reduction of dehydromucic acid with sodium amalgam; Messrs. W. J. Hale and J. W. Dow studied various reactions and derivatives of dehydromucic acid.

The following papers were published during the year:—

1. Bemerkungen über den Siedepunkt von gemengten Lösungen. I. By T. W. RICHARDS and W. L. HARRINGTON. II. By C. McC. GORDON and L. J. HENDERSON. *Zeitschr. phys. Chem.*, xxvii, 421.

2. The Contact Potential between Metals and Fused Salts, and the Dissociation of Fused Salts. By C. McC. GORDON. *Proc. Am. Acad.*, xxxiv, 59; *Zeitschr. phys. Chem.*, xxvii, .

3. Some Electrochemical and Thermochemical Relations of Zinc and Cadmium Amalgams. By T. W. RICHARDS and G. N. LEWIS. *Proc. Am. Acad.*, xxxiv, 87; *Zeitschr. phys. Chem.*, xxviii, 1.

4. Trinitrophenylmalonic Ester; second paper. By C. L. JACKSON and J. I. PHINNEY. *Proc. Am. Acad.*, xxxiv, 103; *Am. Chem. Journ.*, xxi, 418.

5. On the Action of Sodid Ethylate on Tribromdinitrobenzol. By C. L. JACKSON and W. KOCH. *Proc. Am. Acad.*, xxxiv, 119; *Am. Chem. Journ.*, xxi, 510.

6. On Certain Derivatives of Symmetrical Tribromdinitrobenzol. By C. L. JACKSON and F. H. GAZZOLO. *Proc. Am. Acad.*, xxxiv, 139; *Am. Chem. Journ.*, xxii, 50.

7. The Use of Transition Temperatures of Complex Systems as Fixed Points in Thermometry. By T. W. RICHARDS and J. B. CHURCHILL. *Proc. Am. Acad.*, xxxiv, 277; *Zeitschr. phys. Chem.*, xxviii, 313.

8. On the Solubility of Argentic Chloride and Bromide in Solutions of Sodid Thiosulphate. By T. W. RICHARDS and H. B. FABER. *Am. Chem. Journ.*, xxi, 167.

9. A Revision of the Atomic Weight of Nickel; second paper. By T. W. RICHARDS and A. S. CUSHMAN. *Proc. Am. Acad.*, xxxiv, 327; *Zeitschr. anorg. Chem.*, xx, 352.

10. A Revision of the Atomic Weight of Cobalt; second paper. By T. W. RICHARDS and G. P. BAXTER. *Proc. Am. Acad.*, xxxiv, 351; *Zeitschr. anorg. Chem.*, xxi, 250.

11. Note on the Spectra of Hydrogen. By T. W. RICHARDS. *Am. Chem. Journ.*, xxi, 172.

12. A Table of Atomic Weights. By T. W. RICHARDS. *Proc. Am. Acad.*,

13. Zur Darstellung und Reduction der Dehydroschleimsäure. (Vorläufige Mittheilung.) By H. B. HILL. *Ber. deutsch. chem. Ges.*, xxxii, 1221.

14. The Development and Application of a General Equation for Free Energy and Physico-Chemical Equilibrium. By G. N. LEWIS. *Proc. Am. Acad.*, xxxv, 1.

15. A Revision of the Atomic Weight of Cobalt; third paper. By T. W. RICHARDS and G. P. BAXTER. *Proc. Am. Acad.*, xxxv, 59.

16. An Electric Drying Oven. By T. W. RICHARDS. *Am. Chem. Journ.*, xxii, 45.



17. On Nitromalonic Aldehyde. By H. B. HILL and J. TORREY, Jr.  
*Am. Chem. Journ.*, xxii, 89.

18. A Revision of the Atomic Weight of Calcium. By T. W. RICHARDS.  
*Proc. Am. Ass. Adv. Sc.*, August, 1899.

During the summer extensive alterations and repairs were again made in Boylston Hall. The wooden floor of the large laboratory at the eastern end of the third story, which had been in use for nearly thirty years, was so badly worn that it could no longer be repaired to advantage; it was, therefore, torn up and replaced by asphalt. The outside walls of this room, when the roof of the building was raised in 1871, had been finished with lath and plaster, leaving a large empty space with free openings beneath the floor and into the attic. This wooden furring was removed and the walls replastered upon "expanded metal" laid directly upon the rafters; at the same time all openings above and below were closed with brick and mortar. The small room upon the same floor, which until last year had been used as a lecture room, was treated in the same way, the floor covered with asphalt and 13 desks built for students in Quantitative Analysis; these desks occupy but one half of the floor space, so that an equal number can be added in the future. In 1871 the main hall had been finished with lath and plaster in a way which apparently favored the spread of fire and at the same time obstructed the light; both these defects were remedied as far as possible by the removal of superfluous, combustible material. The room on the fourth floor which had long been used for the storage of glassware did not give sufficient space to meet our needs, the walls were built with wooden laths, and it was filled with wooden bins. The ceiling was raised 18 inches, the walls and ceiling replastered upon metallic lath, the wooden floor replaced by asphalt and the storage bins rebuilt of wire netting supported upon iron standards. The capacity of the room has thus been materially increased and the fire risk greatly diminished.

The laboratory for Physical Chemistry (Chemistry 6) on the lower floor has been overcrowded, and the advanced students in the subject have been put to great inconvenience; as their contributions to the scientific work of the laboratory have been important, it was thought best to cut off by a fireproof wall a part of the adjoining laboratory for General Chemistry (Chemistry B), which was somewhat larger than was necessary, and to devote it to work in Physical Chemistry; a commodious dark room, working benches for a number of advanced students and ample wall cases for the keeping of delicate instruments have thus been gained.

HENRY B. HILL, *Director*.

## THE PHYSICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The number of students attending the various courses in Physics is gradually increasing and will reach four hundred this year. During the past year there were eight graduate students whose principal work was in the subject of Physics and who were engaged on researches.

I have been interested to ascertain how this number compared with that in other American Universities, and the result of my inquiry is contained in the following table:—

Cornell University . . . . .	8	Johns Hopkins . . . . .	13
Clark University . . . . .	4	University of Pennsylvania . .	3
Columbia University . . . . .	9	Yale . . . . .	3

The amount of preliminary work in physics and mathematics required of a student before he engages in research varies greatly in American Universities. In certain institutions very little systematic training is demanded before a student enters upon an investigation. These statistics merely show that under existing conditions the number of students who engage in the arduous work of physical research is small.

Professor Nichols of Cornell writes: “A very brisk demand for physics teachers and for college instructors has called many men away who expected to be with us this year.”

This remark also applied during 1898–99 to the Department of Physics at Harvard. Mr. G. W. Maclean, holder of a Whiting Scholarship has accepted a position as teacher in the High School at Ontario, Canada. Mr. Fiske, late assistant and graduate student, has been elected an instructor in physics at Exeter. Mr. Edwards, graduate student, has entered the General Electric Works at Schenectady, N.Y. Mr. Colpitts, late assistant, is with the Bell Telephone Co. in Boston.

Besides the regular work of teaching, my colleagues have devoted much time to original investigation.

Professor B. O. Peirce has continued his work on heat conduction, and has determined the thermal conductivity of a number of standard

discs of vulcanite by means of which he will be enabled to study the conductivity of other extremely poor conductors. A paper giving the results of this work will appear in this year's volume of the London Philosophical Magazine. An abstract has been printed in the Proceedings of the American Academy of Arts and Science. He has also ready a paper on the specific heats of various kinds of glass and marble at different temperatures. The September issue of Science contains an article by him on the perception of horizontal and vertical lines which embodies the result of measurements made by forty different persons, together with a long series of his own measurements. This paper has proved of great interest to psychologists. He has also been engaged upon mathematical investigations.

Professor Hall (with Mr. C. H. Ayers) published during the year an article giving the method and results of a research on the thermal conductivity of cast iron; and was engaged in experiments on the thermal conductivity of wrought iron, the results of which are in preparation for publication. He was chairman from 1897 to 1899 of a committee representative of the whole country, on physics as a College Entrance Requirement in connection with the general Committee of the National Educational Association on College Entrance Requirements, of which Dr. Nightingale of Chicago was chairman, and in this capacity contributed to the report of the general Committee, which is now in print.

Professor Sabine has continued his investigations in sound.

Mr. G. W. Maclean, graduate student, under my direction made an elaborate determination of the velocity of electric waves in air. This work was long continued and arduous, occupying many days and nights. He succeeded in measuring the wave lengths in air, and in obtaining an accurate determination of the velocity of the waves, proving that the velocity is that of light. His paper is published in London Philosophical Magazine for July of this year. Mr. McKay, graduate student, and Mr. J. C. Howe, senior, also under my direction investigated the cause of electric explosions, with the aid of a very powerful apparatus installed in the Physical Laboratory. They proved that the explosive effect of lightning is not caused by heat but is due to an electrical repulsion of the air. This paper is in the London Philosophical Magazine for September, and also in the American Journal of Science for July. I have spent much time with Mr. J. E. Burbank, graduate student, in studying the absorption of the X-rays by air and by hydrogen. It was found that the absorption of a column of air three feet long could not be

detected and it is proposed to study the subject further with more extended means. I have also devoted much attention to the subject of powerful electric discharges, and have now the means of obtaining the highest temperature that has ever been produced ; by its means instantaneous photographs of gaseous spectra can be obtained, a result which has not been hitherto possible, and which will enable me to study the spectra of gases under new conditions.

JOHN TROWBRIDGE, *Director.*



## THE PSYCHOLOGICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY :—

SIR,—The psychological courses have been substantially the same during the year 1898–99 as in the foregoing year; the experimental training course for beginners came into the hands of Dr. MacDougall who was appointed as first assistant of the laboratory. The attendance of the courses showed a steady increase of interest in psychological studies, especially in the higher courses, as my course in advanced psychology was taken by 84 students.

The technical arrangements of the laboratory have not been essentially altered, and the equipment has also needed few additions. The most important piece of apparatus was a large instrument for the study of rhythm; most of the other additions belonged to the equipment for optical experiments. A very welcome enlargement of our facilities was the philosophical-psychological library bequeathed by Mr. Oliver B. Henshaw who was in earlier years a most faithful student in the laboratory, and who lost his life in the Spanish-American war. His picture with an appropriate inscription hangs on the wall of the laboratory library. A very valuable improvement of our reading room is a subject card-catalogue which Dr. B. Rand prepared during the year.

With regard to the research work, in which fourteen advanced students besides the instructors were engaged, the only new departure has been the introduction of animal experiments. As we hope to develop this side of our work into a complete department of the psychological laboratory, I am anxious to protect our work at once against the misunderstanding that psychological experiments on animals have anything to do with vivisection. Without discussing here how far vivisectional experiments are necessary for the study of physiological problems, I want merely to emphasize the fact that no physiological problem interests us here in our psychological workshop. All our studies refer to the sensations, feelings, memories, instincts, and habits of the well-cared-for, normal, living animals. We have begun with experiments on turtles, newts, frogs, and fishes.

The regular research work has moved on the whole on the same lines as in the foregoing year. Among those investigations which have yielded or promise to yield valuable results, I may mention the following: The combination of aesthetical feelings (Keith); the sub-conscious motives of judgment (Burnett); the voluntary inhibition of ideas (Farley); the complication of judgments (Haines); the tactual illusions (Rieber); the psychological units of indirect vision (Amsden); the fusion of touch sensations (Yerkes); the simultaneity of different impressions (Norton); the vertical composition of pictures (Park); the psychology of rhythm (MacDougall).

HUGO MÜNSTERBERG,  
*Professor of Psychology.*

## THE OBSERVATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The continued fall in the rate of interest in recent years has seriously affected all institutions dependent upon the investment of permanent endowments. This is particularly the case with the Astronomical Observatory, since none of its income is derived from students fees or similar sources. The income of the Observatory is diminishing from this cause at the rate of about a thousand dollars a year, or six thousand dollars in the last six years, notwithstanding the increase of its capital by \$45,000 from the Haven Funds as announced a year ago. The matter had become so urgent that the attention of the Visiting Committee was called to it in a report which was transmitted by the Committee to the Board of Overseers, and published in the proceedings of that body. From this report it appears that the invested funds of the Observatory have increased during the last twenty-one years from \$174,000 to \$826,000. The receipts have similarly increased from \$14,000 to \$46,000, although the rate of interest has diminished from 6.36 to 4.37 per cent. The principal has accordingly increased about four and a half times, and the income three times, although the rate of interest has diminished by nearly one third. A decrease of one per cent. represents a loss of income of ten thousand dollars a year. Diagrams are appended showing the principal, rate of interest, income, and pages of publications of the Observatory for the last half century. The observatories having the largest incomes are Washington, \$85,000; Paris, \$53,000; Greenwich, \$49,000; Pulkowa, \$48,000; Cape, \$33,000. Harvard in 1892 received \$53,000, in 1898, \$46,000, its position changing from second to fifth in the above list. If the Observatory is to do the work it did twenty years ago, its present endowment is more than sufficient. If it is to maintain the position it has laboriously attained, additional endowment is essential. It is believed that this need is recognized, and that if properly presented will be supplied. The Observatory has been, and probably will be, almost entirely dependent on private gifts or bequests. All the observatories named above are maintained at government expense. Here no support is received from the public funds. No pecuniary aid can be expected

from the University, its funds being generally restricted, or absorbed in the great expenses of its other departments, many of which appeal more directly to the practical man. The number of assistants at the Observatory has increased from four to forty, nearly forty volumes of Annals have been published, more than thirty of them during the last twenty years, and the southern station in Peru enables us to study all the stars, north and south alike. More than all, the accumulated collection of photographs of the entire sky, gives us a means of studying the history of the stellar universe, such as does not exist elsewhere. Every few days questions are solved by means of these photographs, which without them must wait years for an equally satisfactory solution. A healthy institution must grow steadily, if not rapidly, while here, if the income continues to decrease, work must be abandoned or postponed, and publication delayed, which in some cases endangers the loss of the whole. The only remedy is a large increase in the endowment, or a temporary relief by gifts for immediate use. Delay may cause the poorest economy, by which an immediate saving may be followed later by a much more expensive return to present conditions.

#### OBSERVATORY INSTRUMENTS.

*East Equatorial.*—The observations with this instrument have been made by Professor O. C. Wendell and have been of the same general character as in previous years. Over twenty-nine thousand photometric light comparisons have been made, principally with the polarizing photometer with achromatic prisms described in the annual report for the year ending September 30, 1895. With this instrument, 2,556 photometric comparisons were made of  $\delta$  Cancri, 2,396 of  $\beta$  Canis Majoris, 2,359 of  $\delta$  Librae, 1,712 of the Algol variable  $+45^{\circ}3062$ , 1,380 of  $\alpha$  Virginis, 1,234 of  $\alpha$  Coronae, 1,213 of  $\alpha$  Vulpeculae, 1,140 of the short period variable,  $+42^{\circ}3338$ , 1,000 of  $\alpha$  Cephei, 918 of  $\alpha$  Cygni, 501 of the Algol variable,  $+12^{\circ}3557$ , 448 of  $\chi$  Cygni, 407 of  $\alpha$  Andromedae, and 128 of  $\alpha$  Delphini. In addition to the above, 1,494 comparisons were made of  $\alpha$  Ceti, 836 of  $\beta$  Lyrae, 272 of  $\alpha$  Camelopardali, and 128 of Nova Aurigae with a second photometer adapted to the comparison of stars too near together to be measured with the first instrument. The same instrument has been used in the photometric measurement of Jupiter's satellites while undergoing eclipse. 24 eclipses have been observed, making the total number 684. Iapetus, the outer satellite of Saturn, was measured on 31 nights, to determine its variation in light, and Titan on 32 nights. The numbers of comparisons are 948 and



1,008 respectively. The light of the planet Eros was determined on 11 nights by the method of Argelander. It was also measured photometrically on 4 nights when not too faint. The systematic observation of variable stars of long period, throughout all their changes, and the reduction of the results to the scale of the meridian photometer has been continued. A few estimates have been made by the method of Argelander, generally when the stars were too faint to be observed with small instruments. The selection of faint comparison stars for variables and the determination of their brightness, have also been continued. 2,692 photometric comparisons, and 400 relative estimates have been made. 15 occultations of stars were observed during the Eclipse of the Moon on December 27, 1898. Several other objects of a miscellaneous character have also been observed.

Similar observations of variables and comparison stars have been made with the West Equatorial. With it 302 estimates of variables have been made by Mr. Reed and 731 by Miss Cannon. Mr. Reed has also made 227 estimates of comparison stars for variables. 64 estimates of variables, principally circumpolars, have been made by Mr. Waite, and 102 by Mr. Colson. In addition to the above, over 2,000 comparisons of  $\tau$  Vulpeculae with  $+26^{\circ}40'17''$  have been made by Mr. E. R. Cram, with a photometer mounted as a horizontal telescope.

*Meridian Circle.*—Observations with this instrument have been limited to ordinary determinations of clock error, except that a few additional transits were taken on thirteen dates chiefly for verification of the values of the intervals between the transit lines. Experiments were also tried to determine whether the part of the field in which the collimation was determined had any influence on the result obtained. It appeared that this influence was very slight, if it existed at all.

The reduction of the observations made by the late Professor Rogers in the years 1879–1883 has been carried on by Miss S. C. Bond under the direction of Miss Anna Winlock. For the years 1879 to 1881 inclusive the means of the times of transit over the vertical and over the inclined lines have been taken for each observation, as have also the means of the readings of the circle. These have been entered in a journal comprising 423 pages, with 96 pages of notes. The time of each transit has been reduced to the equivalent fraction of a day, and the constants required for the computation of the reduction from mean to apparent place have likewise been found. A ledger of the observations of each star has also been formed.

The work done on the reductions of the observations of stars in the zone  $-9^{\circ} 50'$  to  $-14^{\circ} 10'$ , during the years 1888 to 1892 inclusive, is at present confined to the examination of cases of discordance, in order to detect errors of computation. Between the right ascensions  $18^h 0^m$  and  $20^h 0^m$  this work has been presumably completed, and will be continued for other parts of the catalogue during the coming year.

The condition of the reductions of the zone observations made in the years 1895 to 1898 inclusive is as follows:—All the chronograph sheets have been read once; all the observations of fundamental stars have been twice reduced to the middle of the field in right ascension, two computations have been made of the means of the microscope readings, and the corrections for runs, curvature, and refraction, while about half of the reduction to the centre of the field in declination has been once computed; the reductions from mean to apparent place have been once (and in part twice) determined, and the values of  $\Delta T + m$ , and of the polar point, have been once computed for about one third of the dates; the observations of circumpolar stars required for the determination of the constant  $n$  and of the inclination of the inclined transit lines have been twice reduced; for the zone stars, the reductions to the middle of the field in right ascension, the means of the microscope readings, the corrections for runs and curvature, and about half the tables for the reductions to mean place, have been once computed.

*12-inch Meridian Photometer.*—The 4-inch meridian photometer has been sent to Peru, and replaced at Cambridge by a horizontal telescope having an aperture of 12 inches, as described in the last report. With this instrument 65,200 photometric settings have been made by the Director on 120 nights. After trial for a year the instrument proves extremely satisfactory in practice. Measures are obtained as rapidly and as accurately as with the older instrument. Stars as faint as the thirteenth magnitude can be measured at the rate of one a minute with an error of about a tenth of a magnitude. The measurements are differential, but every evening many brighter stars are observed whose magnitudes are already given in Volume XXIV of the Annals, and by which the measures may be reduced to the scale of that work. The principal work undertaken is the measurement of all the stars contained in the Durchmusterung in zones  $10'$  in width and selected at intervals of  $10^{\circ}$  from declinations  $-20^{\circ}$  to  $+80^{\circ}$ . About one third of the measures have been made, but the reduction is not far advanced. Two or three hundred comparison stars for variable stars of long period, and various miscellaneous objects have also been measured.

## HENRY DRAPER MEMORIAL.

The number of photographs taken with the 11-inch Draper telescope is 744, making 12,184 in all with this instrument; with the 8-inch Draper telescope, 2,395, making the total number 23,704. The examination by Mrs. Fleming, of the spectra contained on these plates, and of those taken with the Bruce and Bache telescopes has led to the discovery of twenty-three new variable stars, fifteen of which were detected from the presence of bright hydrogen lines in their spectra. Two stars have been found to have spectra of the fourth type, three to have spectra of the fifth type, one star to have a spectrum in which the hydrogen line  $H\beta$  is bright, three in which the spectra are peculiar, and three gaseous nebulae. The hydrogen lines have been found to be bright in the spectra of the six known variables RU Herculis, RS Herculis, R Serpentis, V Lyrae, W Pegasi, and the star in Aquila whose position for 1900 is R. A. =  $19^h 33^m.3$ , Dec. =  $+11^\circ 29'$ . Three variable stars have been discovered by Miss Wells. Several objects of more than usual interest have been discovered. A new star was found in the constellation Sagittarius by Mrs. Fleming, who also found that the star  $\zeta$  Centauri is a spectroscopic binary. Another spectroscopic binary,  $\pi$  Scorpii, was found by Miss Cannon. Both of these objects have been confirmed by Professor Bailey who finds the periods to be  $8^d.024$  and  $1^d.571$ , respectively. The orbit of  $\zeta$  Centauri appears to be a very eccentric ellipse, the maximum separation of the lines occurring at intervals of two and six days alternately. A method of discovering variable stars, by which it is hoped that all short period variables of a certain class may be found, was described in Circular No. 29. By this method the star  $+42^\circ 3338$ , has been found by Mrs. Fleming to be a variable. It has a period of  $13^h 35^m$ , and is interesting from the rapidity with which its light increases, the change amounting to about eight tenths of a magnitude an hour, a rate surpassed by only two or three variables of the Algol type.

Perhaps the most important investigation undertaken this year with the Draper photographs, was the search for the planet Eros during its opposition of 1894. This object approaches the Earth nearer than any other known celestial body except the Moon. A very close approach occurs every thirty-seven years, the last one being in 1893, five years before the planet was discovered. A laborious computation by Mr. Chandler indicated its position at that time, and after a search over a region of thirteen hundred

square degrees it was at last found upon one photograph. In all it appears upon 26 plates, 15 charts and 5 spectrum plates from October 1893 to May 1894, and 6 chart plates in 1896. Its position is thus accurately determined during both of these oppositions. In this search two new variable stars were discovered.

Various investigations have been made in the photographic department by Mr. King, including experiments with different developers, sensitiveness of plates received each month, and measures, by means of a polarizing photometer, of the darkening of a photographic film. A transversal apparatus has been constructed by which prismatic spectra are transformed into normal spectra mechanically, and wave lengths read off directly within a single unit. Photographic transformations of prismatic to normal stellar spectra extending from 3940 to 4860 have been made, in which the error of the uncorrected values is only 1.4. Five occultations of stars by the Moon, one upon the bright limb, have been recorded photographically. Experiments have also been made with the 11-inch telescope, correcting for flexure, atmospheric refraction, etc., by varying the rate of the driving clock. The use of an additional telescope for following visually is thus avoided. Images have been obtained, with exposures of an hour, in which the deviation from a circular form does not exceed a tenth of a millimetre.

The detailed study of the spectra of the southern stars by Miss Cannon is approaching completion, and it is hoped will soon be in the hands of the printer.

#### BOYDEN DEPARTMENT.

Last spring the meridian photometer was taken to Arequipa by Professor Solon I. Bailey and Mr. H. C. Bailey. The latter will take charge of the station in the absence of the former. The immediate object of the expedition was to secure photometric observations of all stars south of declination  $-30^\circ$ , and of the magnitude 7.0 and brighter. A second series of observations will thus be obtained of the stars contained in the Southern Harvard Photometry, and in addition the recent work of the meridian photometer, the measurement of stars of the seventh magnitude north of declination  $-30^\circ$ , will be extended to the south pole. 122 series were taken, including 46,172 photometric settings, and the observations have been completed except for stars whose right ascension lies between 5 and 10 hours. These stars culminate in Arequipa during the cloudy season, but if they cannot be observed there during the next one or two months Professor Bailey is making arrangements to



complete the work in Pampa Central, or in some other suitable station in Chili.

The number of photographs taken this year with the 13-inch Boyden telescope is 686, making 10,013 in all, and 2,301 with the 8-inch Bache telescope, making 24,285 in all. The total number of photographs taken this year at the Arequipa station is 4,392. Visual observations have been made monthly of certain southern variables by Mr. Clymer. Periods have been derived by Professor Bailey for a large number of the variables in the clusters  $\omega$  Centauri and Messier 5, and about 17,000 measures have been made by Miss Leland of the photographic magnitude of 122 of these variables.

Meteorological observing stations have been maintained at Molendo (altitude 100 ft), La Joya (4,150), Arequipa (8,060), Alto de los Huesos (13,300), Mt. Blanc (15,600), El Misti (19,200), Vincocaya (14,600), and Puno (12,500). It has proved impossible to find suitable observers at Echarati and Cuzco, and the work at these stations has been discontinued. The four lower stations have been visited once a month, and the self-recording instruments compared with various standard instruments, including a mercurial barometer and psychrometer. The three stations on El Misti have generally been visited twice a month by Sr. Ayulo, and two or three times during the year by Dr. Stewart.

#### THE BRUCE PHOTOGRAPHIC TELESCOPE.

The number of photographs taken by Dr. Stewart with the Bruce Photographic Telescope is 693, making 4007 in all. They consist mainly of charts having exposures of 10<sup>m</sup> and 60<sup>m</sup>, but a number of plates have been taken of planets and other special objects with exposures of 3<sup>h</sup> to 4<sup>h</sup>. Several spectrum plates have been taken showing the composition of stars too faint to be studied in this way, elsewhere. As stated above, several important discoveries have been made from these plates. On one of them no less than 8 asteroids are shown, and on another 46 new nebulae. The most important discovery is the finding of a new satellite to Saturn by Professor W. H. Pickering. This object, to which the name of Phoebe has been given, appears on four plates taken on August 16, 16, 17, and 18, 1898. The position of all these images is closely represented by assuming that its period is 490 days. Owing to the extreme faintness of this object it can be photographed only when Saturn is near one of its stationary points. The plates taken in September, 1898, were not sufficiently good, and clouds prevented good results being obtained in the spring of 1899. It is hoped that

photographs taken in August, 1899, will enable the orbit to be accurately determined.

#### BLUE HILL OBSERVATORY.

As in former years, the work of the Observatory has been carried on under the direction, and at the expense of Mr. Rotch. The usual observations for the years 1897 and 1898, and the measurements of clouds during the international "cloud-year," are now in press and will form Volume XLII, Part II, of the Annals. The use of kites to obtain records in the upper air has been continued with special reference to the conditions in cyclones and anti-cyclones. The average height of the meteorograph during the five flights between February 23-28, 1899, was 9,650 feet above Blue Hill, and the greatest height was 11,815 feet, or 370 feet above the highest flight of the preceding year. During the past summer, assisted by a grant from the Hodgkins Fund of the Smithsonian Institution, kites were used to elevate the wires between which electrical communication was established by Marconi's method. Signals were transmitted from a kite-wire on Blue Hill to a wire on the tower of Memorial Hall in Cambridge, eleven and a half miles distant. The atmospheric electricity collected by the wire seems to preclude lifting it very high and so greatly extending the range of communication. During the first half of 1899 three Bulletins were prepared by members of the Observatory Staff. In the first and last Bulletins the data obtained in certain kite-flights are discussed, and the construction of the kites and apparatus is explained, while in the second Bulletin the remarkable snow storms of November 1898 and February 1899 are described.

#### MISCELLANEOUS.

*Library.*—The library of the Observatory has been increased during this year by the addition of 400 volumes and 911 pamphlets. The total numbers of volumes and pamphlets in the library on October 1, 1899, were 9,435 and 13,698, respectively. Especial efforts are being made to render the meteorological, as well as the astronomical, collection of publications here, and at Arequipa, as complete as possible. Every year the need of more space for books, and of modern stacks is becoming more urgent. In view of the continued increase in the value of the collection, the danger of destruction by fire becomes a matter of more serious consideration. A building like that containing the photographs could be constructed for about fifteen thousand dollars. It would form a lasting memorial to a donor, with which his name would always be associated.

*Telegraphic Announcements.* — The system for the distribution of telegraphic announcements of astronomical discoveries has been extended and improved. 28 bulletins have been issued this year, making 52 in all. The bulletins are sent gratuitously to such institutions, newspapers, and individuals as are likely to make use of them. In general, when a cipher telegram is received at the Observatory, it is translated, printed by an autographic process upon the bulletin sheets, and mailed within about an hour after the receipt of the original message. Several persons are prepared to take charge of the distribution so that, in the absence of one, another is available. Telephonic connection with the Boston telegraph office renders the Observatory accessible at all hours of the day and night. The Lick Observatory lends active assistance by making early observations of new comets. Generally each comet is observed there on the three nights following its discovery, and an orbit is at once computed and telegraphed here, whence it is cabled to Kiel for distribution to the various European Observatories. Of the 28 messages distributed this year, 16 were received from Professor J. E. Keeler, Director of the Lick Observatory, 2 from Kiel, 2 from Mr. John Ritchie, Jr., and 4 from four other sources. The remaining 4 messages originated at this Observatory. The distribution of announcements by telegraph is continued to such subscribers as wish to pay for the messages. Astronomers are requested as heretofore to send to this Observatory announcements of their discoveries for transmission to the Observatories of Europe and America. To secure prompt attention it is requested that all telegrams be addressed "Harvard College Observatory, Cambridge, Mass." All correspondence relating to telegrams and announcements should be addressed to the Director.

*The November Meteors.* — On November 14, 1898, 800 meteors, not including duplicates, were recorded at this Observatory by 30 persons, and 227 trails were charted. Similar observations of 400 meteors were obtained by ten observers under the direction of Professor Upton of the Ladd Observatory. 96 photographs were taken by 13 instruments at Cambridge and 25 photographs were taken with 2 instruments at a station established at Tufts College. 31 trails of 8 meteors were photographed and promise to give an accurate determination of the radiant point. Besides this, counts of the frequency of the meteors have been made by a large number of observers in all parts of the world, from which it is hoped that we may obtain an idea of the density of the meteor stream during the entire time that the Earth was traversing it.

More extensive preparations are being made for the Shower of November, 1899. It is expected that records from a large number of observers will be received here and if the weather is favorable that numerous observations both photographic and visual will be obtained at Providence, Blue Hill, and Cambridge. From the photographs it is hoped that the path, time, brightness, distance, and velocity will be obtained of all meteors of the second magnitude and brighter appearing within  $30^\circ$  of the radiant point.

*Publications.* — Volume XXIII of the Annals has been completed by the publication of Part II. Pages 117 to 310 of Volume XXXII, Part II, are in type, and the remainder of the volume is in the hands of the printer. Pages 1 to 248 of Volume XXXIII are in type, and the remainder of this volume is also in the hands of the printer. With these exceptions, and the portions of Volume XXVIII following Part I, the first thirty-six volumes of the Annals are now complete. Volumes XXXIX, XL, XLI, Parts I to V, and XLII, Part I, have already been published. Volume XLII will be completed by the publication of Part II, which will contain the results of the observations made at the Blue Hill Meteorological Observatory during the years 1897 and 1898. About 100 pages of this work are in type. Arrangements have been made with the Publication Agent of the University, by which it is expected that the Annals can be advantageously published by him from type owned by the Observatory, and according to this plan, 104 pages of Volume XLIV are now in type. The remainder of Part I of this volume is ready for publication. It will contain the results of observations made with the meridian photometer during the years 1891 to 1895, and will include reobservations of the stars of the Harvard Photometry, several hundred comparison stars of variables and other miscellaneous objects. The total number of stars in this catalogue is 6,387, of photometric settings, 106,708. The results of this work will thus shortly be in the hands of astronomers without the delay which would be incurred in first publishing the constants employed in its reduction. During a large part of the year, four volumes of Annals have been in process of publication, copy being furnished as fast as required. A card catalogue of published maxima and minima of variable stars is in course of preparation by Mr. Reed and now contains about 12,000 cards.



The following twelve circulars have been issued during the year :—

35. The November Meteors in 1898. November 19, 1898.
36. Witt's Planet (433) DQ. December 26, 1898.
37. Additional Observations of Eros (433). January 16, 1899.
38. New Nebulae and Nebulous Stars. January 31, 1899.
39. A New Form of Photographic Telescope. February 11, 1899.
40. Photographing Meteors. February 20, 1899.
41. The Variable Stars U Vulpeculae and ST Cygni. S Antliae. February 21, 1899.
42. A New Star in Sagittarius. March 14, 1899.
43. A New Satellite of Saturn. April 10, 1899.
44. The New Algol Variable in Cygnus, + 45°3062. June 10, 1899.
45. The November Meteors of 1899. September 18, 1899.
46. Position of Nova Sagittarii. September 23, 1899.

The following minor publications have also appeared during the year :—

- Fifty-third Annual Report of the Director of the Astronomical Observatory of Harvard College. Cambridge, 1898.
- Report of the Committee to Visit the Observatory.
- Suggestions to Observers of the Zodiacal Light. By Arthur Searle. Appendix B in "A Laboratory Manual in Astronomy, by Mary E. Byrd". Boston, 1899.
- Personal Equation in Transit Observations. By Arthur Searle. *Astrophysical Journal*, viii, 229.
- The Zodiacal Light. By Arthur Searle. *Ibid.*, viii, 244.
- The Meteoric Theory of the Gegenschein. By Arthur Searle. *The Observatory*, xxii, 282.
- Discussion of a National Observatory. Letter from Arthur Searle. *Science* (New Series), ix, 472.
- Letter from W. H. Pickering. *Science* (New Series), ix, 472.
- The Canals of Mars. By W. H. Pickering. *Bulletin de la Société Astronomique de France*, xiii, 171.
- The Elongated Satellites of Jupiter. By W. H. Pickering. *Journal of the British Astronomical Association*, ix, 335.
- Photographic Work at Harvard College Observatory. By E. S. King. *Photogram*, vol. vi, 225, 259, 347.
- Jahresberichte der Sternwarten für 1898. Cambridge (U. S. A.). By Edward C. Pickering. *Vierteljahr. der Astron. Gesell.*, vol. xxxiv, 106.

EDWARD C. PICKERING, *Director.*

## THE MUSEUM OF COMPARATIVE ZOÖLOGY.

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE:—

During the past academic year the regular courses in Zoölogy and Geology were given in the Natural History Laboratories of the Museum. Nine courses in Zoölogy were given by Assistant Professor Jackson, Doctors Parker, Davenport, and Castle, assisted by Messrs. M. A. Bigelow, R. W. Hall, P. Frandsen, W. J. Moenkhaus, H. W. Rand, C. W. Prentiss, and S. R. Williams. These courses were attended by 250 students. Four of the courses were also given to 42 students of Radcliffe College. Fourteen courses in Geology were given by Professors Shaler and Jackson, Doctors Daly and Jagger, Messrs. Ward and Woodworth, assisted by Messrs. J. M. Boutwell and J. E. Woodman. The courses in Geology were attended by 485 students. Two of the courses in Geology were given to 23 students of Radcliffe.

Details concerning the courses of instruction will be found in the reports of the departments under the Faculty of Arts and Sciences.

Nine students benefited by the income of the Humboldt Fund, which was applied for their maintenance during summer study at the United States Fish Commission Laboratory at Wood's Hole.

The Virginia Barret Gibbs Scholarship was held by Mr. M. A. Bigelow.

Mr. Brewster in his report calls attention to the pressing need of the Museum for a collection of mammal skins for study and reference. The storage collection now possessed by the Museum is so small and of such poor quality that we are really crippled; and the one thing needed by the Museum to balance its rich reference collections is an extensive series of mammal skins. Just such a collection as is needed has been offered to us at a low price, but unfortunately at a price beyond the limits of our income.

The collection of mounted mammals on exhibition is now nearly complete, and there remain only a few important gaps in the systematic and faunal exhibits, specimens to fill some of which have already been ordered.

The chief additions to the bird collection are the last invoice of duplicates from the Hume collection of Indian birds received from the British Museum, and a series of skins presented by Mr. Brewster.

No important additions have been made to the Fishes and Reptiles, though we are indebted to many contributors.

The shells of the Warren Delano collection have been identified by Professor Charles W. Johnson, of Philadelphia, and have been numbered, catalogued, and arranged by Miss E. B. Bryant, who has also made good progress under the direction of Dr. Faxon in cataloguing and arranging the Call collection of Unionidae.

The collection of Crustacea has been enriched by a set of duplicates from the dredgings of the "Travailleur" and "Talisman," received from the Paris Museum, and by exchanges with the National Museum at Washington.

The entomological department continues to be much used by visiting specialists, and Mr. Henshaw reports many contributions to the collections. The addition of a number of cases has made it possible to begin spreading the Lepidoptera collected by Mr. Agassiz and his assistants in Australia and the Fiji Islands.

Dr. Mayer remains in charge of the Radiates, and during the past year continued his studies on North American Jellyfish.

Owing to my absence from Cambridge during a part of the year, but little work has been done on the worms. The chief additions comprise a collection of annelids made by me in Samoa, consisting principally of material for my work on the Palolo, and a series of types received from Professor H. B. Ward. The Gephyreans have been loaned to Professor Ward for study, and the Leeches to Dr. W. E. Castle. Some progress was made in cataloguing the collections, and that part of the catalogue pertaining to the Annelida is now complete.

The assistants in Palaeontology report that the collections are in excellent condition. The only noteworthy additions are several important collections of fossil fishes secured through the exertions of Dr. Eastman.

The type specimen of *Titanichthys agassizii* N. and an almost complete skeleton of *Dinichthys terrelli* N. have been mounted by Mr. J. H. Emerton, who has skilfully restored some of the missing plates. When completed the specimens will form prominent features of the palaeozoic exhibit.

A superb slab of *Uintacrinus socialis* Grinn. has been presented to the Museum by Mr. Frank Springer. The slab is four by eight feet in extreme dimensions, and contains about one hundred and twenty individuals with the arms attached, some of which can be traced for a distance of more than two feet. The calyces occur in all positions, some of them showing the basal plates. The slab was mounted by Mr. Emerton, and is now on exhibition in the lower hall of the main entrance. As a museum specimen it is probably unequalled.

From the heirs of David Kimball the Museum has received the fossils, shells, and corals of the old Boston Museum collection, which were removed after the fire. The collection contained some desirable specimens.

A large collection of rocks has been received from Mr. Agassiz. It is a collection made for Mr. Agassiz by Mr. E. C. Andrews, of the University of Sydney, of the elevated limestones of the Fiji Islands in continuation of his researches on the coral reefs of that group. Mr. Andrews spent the summer of 1898 in Fiji, and was assisted by Mr. B. Sawyer. The explorations were made at considerable personal risk, as the only means of communication between the islands consisted of cutters not over seaworthy. Mr. Andrews had the advantage of the advice of Professor T. W. E. David, of the University of Sydney, who took great interest in this investigation by one of his pupils. The collection contains many fossils from the different elevated limestones, mainly Ngillangillah, Mango, Kambara, and the Singatoka River, as well as the characteristic rocks found associated with them.

The Library continues to increase steadily, and during the past year has received about the usual number of additions. A door has been cut connecting the rooms containing the Whitney Library with the general stack, thus making the Whitney collection more accessible from the delivery room.

The publications of the past year consisted of four numbers of the "Bulletin," including one contribution from the Zoölogical Laboratory, in charge of Professor Mark. Mr. Agassiz's Report on the Coral Reefs of the Fiji Islands occupies the whole of Vol. XXXIII. Vol. XXXV is now in course of publication. Of the Memoirs, Vol. XXIV, Mr. Garman's Report on the Fishes of the "Albatross" Expedition, is nearly ready.

Chief among the repairs and alterations in the building has been the removal of the elevator in the north wing, thus providing space for additional cases in the large exhibition hall and the gallery.

The Corporation having voted the necessary money for the construction of a shed at the south end of the west wing, Professor Wolff has removed his motor and dynamo from the basement, together with the rest of the machinery of the mineralogical department. This gives us two rooms in the basement, of which we have been much in need, for a taxidermist's shop and general museum uses.

The number of visitors to the Museum on Sunday afternoons has been so large during the winter that at our request the Mayor of Cambridge has detailed two police officers to be in attendance on Sunday afternoons to assist in patrolling the building.



The use of the exhibition rooms by teachers and their classes has been greater during the past year than at any time previous, and letters are constantly being received asking if the Museum is open on Saturday afternoons. It is not uncommon to see from four to six classes in a single afternoon.

Every effort has been made to diminish the fire risks, which have increased with the growing attendance of students in the many laboratories in the building. In addition to the stand-pipes and hose racks installed last year, the Corporation have agreed to provide a night-watchman who shall regularly patrol the building at night, and for this purpose have installed a watchman's clock system, which also extends to the Peabody and University Museums. Furthermore the Faculty of the Museum have voted that the building shall no longer be opened at night for seminars and other meetings. It is hoped that at some not distant day the boilers of the heating plant can be removed to a separate, detached, building.

Professor William Morris Davis has been appointed to the vacant Sturgis-Hooper chair of Geology.

Radcliffe College has made its first annual appropriation of \$700 as a compensation to the Museum for the use of the rooms and laboratories by its students. Radcliffe has always enjoyed the facilities of the Museum, occupying at various times during the college year eight out of the eleven lecture-rooms and laboratories to the exclusion of other students at those hours. It would be no more than reasonable that a similar provision should be made for the large classes of the Summer School of Geology which take possession of the building during the summer months.

The invested funds of the Museum have been increased by a grant of the Corporation of \$100,000 from the Henry L. Pierce bequest. This welcome addition will in a small measure compensate for the shrinkage of the income of the Museum through the decreased rate of interest from its invested funds.

After almost thirty years of faithful and devoted service as Librarian of the Museum, Miss Frances M. Slack has been appointed Librarian Emerita. Under her care the Library has grown from less than 10,000 to more than 32,000 volumes and nearly as many pamphlets and unbound parts; and during her administration of the Library the influence of the Museum has been widely extended through its exchanges. Miss Slack will continue to give her services to the Museum which has so long benefited by them.

Mr. Samuel Henshaw, Museum Assistant in Entomology, has accepted the appointment of Librarian, and at the beginning of the academic year will assume charge of the Library. Mr. Henshaw

will remain in charge of the entomological department, and in addition to his duties as Librarian will have under his care the publications of the Museum. The Museum is most fortunate in securing the services of Mr. Henshaw, who resigns the secretaryship of the Boston Society of Natural History to give all of his time to the Museum, whose activities will thus be strengthened.

At the wish of Mr. Agassiz I visited the Samoan Islands during a part of the past winter to procure additional material for my work on the Palolo or Bololo worm, which was begun in the Fiji Islands, whither I accompanied Mr. Agassiz as his assistant. I was successful beyond expectations, though not without hardships, in solving the mystery of this interesting annelid, and brought back with me an unrivalled lot of material. I am under great obligations to Capt. Victor Schoenfelder of H. I. M. S. "Falke," to Mr. W. Blacklock, U. S. Vice-Consul at Apia, for assistance and many kindnesses, and also to my native friends, without whose help and interest success would have been impossible. To Dr. Augustin Krämer of the Imperial German Navy, a fellow naturalist, I am especially indebted, for his unselfish help and advice and his tender care of me when I was ill at Apia. Dr. Krämer has also placed at my disposal his splendid collection of annelids from the reefs of Samoa, where he was through three Palolo seasons working at the same problem as myself.

Leave of absence has been granted to me to accompany Mr. Agassiz on an expedition to the South Pacific during the coming fall and winter. The United States Fish Commission steamer "Albatross" has been placed at the disposal of Mr. Agassiz, who will take with him as assistants from the Museum Dr. A. G. Mayer and myself. The Hon. George M. Bowers, United States Fish Commissioner, and the Navy Department have done everything possible to advance the interests of the expedition. Lieutenant-Commander Jefferson F. Moser, U. S. N., will command the "Albatross." The expedition is undertaken by Mr. Agassiz chiefly in continuation of his researches on coral formations, but deep-sea work will also be carried on. The main fields of work of the expedition will be the Paumotu and Marshall Islands, and the "Albatross" will also visit the Marquesas, Society, Tonga, Fiji, Cook, Ellice, Gilbert, Caroline, and Ladrone Islands and smaller intermediate groups. The results of the expedition will be published by the Fish Commission in coöperation with Mr. Agassiz for the Museum.

W. McM. WOODWORTH,  
*Assistant in Charge.*

CAMBRIDGE, September 1, 1899.

## THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — In presenting this thirty-third report on the Peabody Museum, I recall that it is now twenty-five years since I took charge of the collections, which at that time were in the cases on the gallery of the Wyman Anatomical Museum in Boylston Hall and in two cases in Professor Wyman's laboratory. Three years later the first section of the present building on Divinity Avenue was erected and the collections were soon installed in their permanent home. In 1887 the building was increased to double its size, the collections having again outgrown their quarters. The activity of the Museum during the last decade in carrying on special explorations, particularly in Central America, and the several large collections received as gifts, have again made it difficult to properly care for, and impossible to arrange, all the material now crowded into the building.

In February last, at the request of Mr. Augustus Hemenway, Chairman of the Visiting Committee, I submitted to the Committee a statement of the most pressing needs of the Museum. The following is a brief abstract of this statement:—

“ *The Building.* — The members of the Committee must have noticed the crowded condition of the cases and halls, and must have realized the fact that it is impossible to exhibit, or even make available for comparative study, a large portion of the valuable material belonging to the Museum. Every effort possible is being made to arrange such of the collections as can be exhibited in an instructive manner, but until the remaining half of the building (completing the south wing of the University Museum) is erected we cannot arrange the collections in perfect sequence, nor can we make use of a great mass of archaeological material of inestimable value which is now stored in every available space from basement to attic. The cost of completing the building and furnishing the cases has been estimated at \$150,000, to which should be added a fund of \$50,000, the income to be used for repairs and maintenance. It has been my cherished hope that the building might be completed during the remaining years of my activity,



that I might have the opportunity of arranging all the collections in accordance with the plans I have gradually developed for the proper arrangement of an anthropological museum, — one that should be instructive to all visitors and at the same time useful to the students of the University.

“*Assistants.* — Another pressing need under the present conditions of the Museum is to provide for the permanent employment of assistants.

“The Peabody fund yields about \$3,600 a year. This is the only money regularly at my disposal for the care and maintenance of the Museum. Out of this the fireman, who acts as janitor, and the woman care-taker have to be paid; also the cost of heating, lighting, and repairs, — the necessary expenses of the building, — leaving, after the most economical management, less than \$2,000 for all other purposes of administration, including the care and arrangement of the collections and of the library.

“The Huntington Frothingham Wolcott Fund and the Henry Warren Fund provide about \$800 a year, which can be used for the increase of the collections. The Hemenway and Thaw Fellowships and the Winthrop Scholarship are for the benefit of students in this division of the University, and only indirectly aid the Museum.

“The salary of the Peabody Professor, who is also the Curator of the Museum, is derived from the income of the Peabody Professorship Fund, which yields about \$2,200 a year. Owing to the small income of this fund, the Peabody Professor is allowed half of his time for other duties.

“The friends of the Museum have contributed generously for the purposes of exploration and publication, and, occasionally, for the general purposes of the Museum. It is only by the aid of such contributors that the Museum has been able to take and maintain a leading position in American archaeological research, and to publish a number of valuable Memoirs and Papers.

“It is also due to the assistance of a few friends that the services of the Chief Assistant in the Museum were secured for the past two years, thus relieving me to that extent from the personal responsibility of his salary which I have assumed for several years. The salary of the Secretary of the Museum is paid by myself personally.

“It will be seen by the foregoing statements that the funds at my disposal, under the authority of the Faculty of the Museum, do not even permit of paying the salary of the able and efficient Museum Assistant who since 1891 has been associated with me in my work. The best interests of the Museum will surely be served if the means can be obtained for the permanent employment of this assistant, as an assistant curator.”

Notwithstanding the crowded condition of the Museum, considerable progress has been made in the rearrangement of several of the halls during the past year. By storing certain collections and changing the arrangement of others, many of the more recent accessions, which could not be stored without risk of injury, have been placed in cases. Several new cases have been put up in the lecture



hall in order to display more of the objects illustrative of the former life of our Indian tribes. The Central American Hall has been rearranged and several large casts which had been stored are now mounted between the stairways of the third floor. Thanks to the arrangement made with the Duke of Loubat, to whom the students of American archaeology are so deeply indebted, all the moulds secured by the Museum expeditions in Yucatan and Central America have been cast. We have thus been able to advance the study of American archaeology by the distribution of valuable casts to other museums. There are now in the Art Museum of Boston, the Field Columbian Museum of Chicago, the Museum of Science and Art of Philadelphia, and the Ethnographical Museums of Paris and Berlin, a number of casts made at different times from the Museum moulds; while the American Museum of Natural History of New York has a complete series from all our moulds.

Most of the accessions to the Museum, during the past year, have been catalogued as received. In all 2,074 entries have been made. A considerable number of collections are still in storage and others have never been unpacked. Mr. Willoughby has been in special charge of this work, and has also assisted in the administration of the Museum, taking charge in my absence, and giving assistance to students and others in search of special information.

Mr. Gordon was employed for several months superintending the making of casts from the Copan moulds; afterward in making the drawings for a future publication on the pottery from Copan; and later in preparing for another expedition to Central America. Mr. Thompson writes from Yucatan that he has made tracings of a number of mural paintings at Chichen Itza and has made moulds of several important sculptures found in the ruins of that ancient city. Mr. Maler has sent photographs of interesting sculptures found in the ruins of Guatemala.

Mrs. Zelia Nuttall has continued her researches on ancient Mexico. We are now printing, as No. 7 of the Museum Papers, an elaborate memoir under the title of "The Key-note of ancient American Civilizations", in which she gives the results of many years of research on the Mexican and Maya civilizations. It is hoped that this important and suggestive memoir will be issued within a few months. It will unquestionably stimulate others to pursue this most interesting subject.

Miss Fletcher, the holder of the Thaw Fellowship, has continued her researches upon the rituals of the Omahas and Pawnees, with the assistance of Mr. La Flesche. In the autumn of 1898 an aged

Pawnee priest was brought to Washington, and from him Miss Fletcher secured nearly a hundred graphophone records, including over fifty rituals and chants. She has one complete ceremony, including over one hundred and fifty chants, of which the music has been written out, and also the words with a literal translation. During the year Miss Fletcher has written several papers on Indian songs and the relation of song and story. These papers are now being printed in book form under the title of "Indian Song and Story." This little volume will be a most welcome addition to the literature on Indian music and ceremonies, — subjects in which Miss Fletcher was a pioneer worker and in which she is now an acknowledged authority. In connection with her special work on the Omahas, Miss Fletcher has long been engaged in obtaining the Ritual of the Earth Lodge. A portion of this ritual has died out with the last generation of the Omahas; but this missing part, she finds, is still known to a few aged Pawnees, and from them she has secured it. In connection with this ritual, we have received from Miss Gay — Miss Fletcher's collaborator and constant companion — a model of the earth lodge itself, which was made by an Omaha under Miss Gay's personal supervision. In every detail of measurement and construction this model is made exactly as these structures were made in the past. It is exhibited in the Indian Hall of the Museum, accompanied with photographs illustrating the several stages of its structure, and is a most important addition to our as yet small series of models of Indian habitations.

Mr. R. B. Dixon, Hemenway Fellow and Assistant in Anthropology, had the opportunity of studying the Maidu Indians of California during the past year while in charge of the Huntington expedition of the American Museum of New York. Mr. J. R. Swanton, a non-resident graduate in this division of the University, has continued the study of Indian languages during the year under the direction of Professor Boas of Columbia University. Mr. William Jones, Winthrop Scholar, has made a special study to determine the language and customs of the former Indians of Massachusetts, in connection with his researches upon the Algonkins, to which great Indian stock he belongs. Mr. W. B. Nickerson, to whom a small appropriation was granted that he might continue the exploration of a group of mounds near Galena, Ill., has sent in the report of his work with drawings and full notes on the structure of the mounds explored, and also the specimens obtained from the mounds. Mr. Nickerson has also forwarded specimens from various persons who have given them to the Museum.

In 1898, Dr. W. H. Jarman sent to the Museum a collection of bones of extinct animals dredged from the Alafia river, and with them were several implements made from the bones of a species of *Cervus*. During the month of March, 1899, it was my good fortune to visit the west coast of Florida, and while there, thanks to the kind assistance of Mrs. Esther Herrman of New York, I was able to make an examination of the mounds and shell-heaps in the vicinity of Tampa and to study the geology of that part of the country. My friend, Captain Coe, of Tampa, most kindly placed his steamboat, dredges, and workmen at my disposal, and further dredging was done in the phosphate deposits at the bottom of the Alafia river. Many bones of extinct animals were brought up by the dredge and also three implements of bone and a chipped stone. All the bone implements, like those collected by Dr. Jarman, were made from the bones of a species of *Cervus* closely resembling the elk. As this species seems to have continued from the latest tertiary times to the present, it is impossible to determine whether the implements were made from bones of the existing elk or from those of the p'eistocene variety of this animal. These implements, therefore, cannot be taken as evidence of greater antiquity than that of similar implements found in the shell-mounds, although they have the characteristics of the fossil bones with which they were associated. It is possible that these implements may have been washed into the river and thus have been mixed with the fossil bones, but it is a singular fact that none of the other characteristic specimens found in the shell-mounds were brought up by the dredge. This region is worthy of a most careful study, both archaeologically and geologically, and I am pleased to report that Mr. Clarence B. Moore, who has done such thorough work on the east coast of Florida, hopes to make an investigation of the Tampa region during the coming winter.

During the month of September, in connection with the Hyde Southwestern Expedition of the American Museum of New York, I made an investigation of several groups of ruined pueblos and cliff houses in New Mexico and Colorado. This Hyde Expedition is now in its third year and is planned for long-continued and exhaustive exploration. Many important facts have been discovered which will be reported upon later. The brothers B. T. B. Hyde and F. E. Hyde, Jr., who are carrying on this exploration, were for a time students in this department of the University.

The income of the Huntington Frothingham Wolcott Fund for the year 1898-99 was devoted to the purchase of two collections:  
(1) One of exceptional interest from the ancient graves of the Green-



land Eskimo. This collection was made by Mr. Sornborger three years ago. It contains several complete skeletons and a number of skulls of the Eskimo, as well as considerable material illustrative of Eskimo arts and customs before white contact. With the collection are also several implements and weapons of the South Greenland Eskimo. (2) The Frazer collection of stone implements, ornaments, and other objects of the Massachusetts Indians. This will make a large addition to our exhibit of the work of the Indians of New England.

In no single year have so many valuable and important specimens been received by gift as during the past year. The first of the large single gifts to be mentioned is that from Mr. David P. Kimball, Mrs. Augusta L. Horton, and Mr. L. Cushing Kimball, — the heirs of the late David Kimball. This is the ethnological and archaeological collection which was brought together by the brothers David and Moses Kimball, and was exhibited in the old Boston Museum on Tremont Street, where it was seen by thousands of persons belonging to three generations. These objects were largely collected from fifty to over a hundred years ago, by sea captains and travellers, from the islands of the Pacific, from Africa, Asia, the East Indies, Australia, and the native tribes of North and South America. It would be difficult, and in many instances impossible, to obtain similar specimens at the present time, since commerce and the subsequent modification in the life of the peoples have brought about changes in their arts and customs. The collection includes a number of most valuable objects from our Indians. These are unique specimens illustrating Indian art and ceremonies, including numerous pipes ornamented with feathers, and with porcupine quill work of various designs. A Sioux Chief's head-dress and armlets made of raven skins, the tail feathers of which are decorated with porcupine quills, Sioux buckskin shirts, and a Sac tobacco pouch made of otter skin, ornamented with quill work, are among the objects from the expedition of Lewis and Clark in 1804-06. Several carved images from Easter Island, New Zealand, and the Marquesas Islands, and carved paddles, clubs, and ceremonial axes and staves of antique forms from many of the Pacific Islands, are some of the important specimens in the collection. One of the famous feather cloaks, worn by royal personages of the Hawaiian Islands in former times, is an exceedingly valuable addition to the Museum, as are also two of the unique feather helmets from these islands. There are also many bows, arrows, and quivers from various parts of the world; carved dishes and bowls from New Zealand and other islands;



musical instruments and large tom-toms from Africa; models of the boats of many native peoples; personal ornaments of shell and ivory and metal from various countries; a collection of native foot-wear of many peoples; statues of Buddha from India; ancient armor and weapons from Japan, China, and Europe; a number of stone implements from various places, including a beautiful axe of nephrite from New Zealand; and hundreds of other objects, both rare and valuable. These specimens have all been put in order and catalogued under 1,035 distinct entries. They will greatly increase the importance of our ethnographical exhibits when they are distributed throughout the collections. It is my intention first to make a temporary exhibit of the collection as a whole, that this magnificent gift may be duly appreciated by the friends of the Museum.

As a supplement to the ethnological collection from the Pacific Islands received in past years from Dr. Alexander Agassiz, Dr. W. McM. Woodworth secured for the Museum, while on his recent trip to Samoa, over a hundred specimens illustrating the home life of the Samoans, including large pieces of tapa cloth, with the fibre in various stages of preparation, and a full native outfit for making, dyeing, and stamping the cloth in several patterns. Mr. Maximilian Agassiz has given a model of a canoe obtained by him in Fiji; and Dr. Agassiz has given a perfect skull of a Fijian.

Another addition of great ethnological interest in connection with Australian, Melanesian, and Polynesian exhibits is a collection of 150 photographs from Dr. Alexander Agassiz. These illustrate native dances and ceremonies; fire-making and preparation of food; methods of fishing, trading, canoeing, painting tapa cloth, throwing the boomerang, tracking, tattooing, and tree carving; methods of burial; and several habitations, including the marine villages and tree-houses of New Guinea.

We have received from the heirs of the late Warren Delano (through the Museum of Comparative Zoölogy) a very interesting collection of ethnological objects, collected over fifty years ago by Mr. and Mrs. Ballestier, then residing at Singapore.

From Mr. F. A. Delano (H. U. '85), of Chicago, there have been received fifty-two copies in oil of the portraits of the Indians painted from life by E. A. Burbank. The paintings are accurate as to portraiture, and aid in understanding the use of many objects in the collections illustrative of the life and customs of several tribes of Indians. Mr. Delano has added to the value of his gift by having the portraits appropriately framed for exhibition in the Museum. He has also given 34 photographs of the portraits by Burbank of

which the originals could not be secured for copying in color, and 61 photographs of Indians taken during the Omaha Exposition in 1898.

Mr. Clarence B. Moore, who always remembers the Museum during his explorations, has sent us a fine example of urn burial from the ancient cemetery at Durand's Bend on the Alabama river. In this instance the large vessel contained the remnants of the skeleton of an infant and a circular shell ornament. Over this vessel another was inverted as a cover, and a hole in its bottom was covered by a large potsherd. These are shown, as found, in figure 32 of Mr. Moore's recently published memoir on "Certain Aboriginal Remains of the Alabama River." Mr. Moore has presented a copy of this memoir to the Museum Library.

We have received from the estate of the late W. Hallett Phillips, through the Smithsonian Institution, an interesting lot of chipped stone implements which were collected by Mr. Phillips in Maryland and Virginia.

From the American Museum of Natural History we have received in exchange a collection from Port Clarence which fills a number of gaps in our western Eskimo exhibit. By purchase we have added two human skulls and several objects found by Mr. Albert I. Phelps in a shell heap near Damariscotta, Me.

Numerous other gifts have been received from friends during the year, all of which have been personally acknowledged and catalogued.

To the Library additions have been made by gift and by exchange for our own publications. In all 96 volumes and 114 pamphlets have been added to the Library. Several new and important exchanges have been added to our list during the year in answer to my requests. Among the important gifts are copies of the facsimile reproductions of the "Codex Telleriano-Remensis" and the "Codice Messicano di Bologna," from the Duke of Loubat. Mr. Loubat has again rendered a great service to students of Mexican archaeology by reproducing these valuable Mexican manuscripts. We are also indebted to him for a copy of the "Decades Americanae," by Dr. E. T. Hamy. Dr. Paul Ehrenreich of Berlin has presented copies of his valuable memoirs entitled "Anthropologische Studien über die Urbewohner Brasiliens," "Beiträge zur Völkerkunde Brasiliens," and "Materialien zur Sprachenkunde Brasiliens." Pamphlets and volumes have been received from the estate of Mary Hemenway; and also from Mr. Charles P. Bowditch and other friends of the Museum. These additions are catalogued at the

College Library. The Library of the Museum now contains 2,044 volumes and 2,697 pamphlets on anthropological subjects.

It is a satisfaction to know from Dr. A. B. Meyer, the Director of the Royal Ethnographical Museum of Dresden, who has been making an examination of the Museums in this country by order of the King of Saxony, that he considers the construction of our Museum cases superior to all other cases he has seen made of wood. Dr. Meyer has invented several forms of iron cases for museums, which certainly have many points in their favor over those made of wood. The cost of such cases, however, added to that of the heavy plate glass used, is so great as to render them virtually impracticable in this country.

The courses of instruction given in the Museum have been increased for the year 1899-1900 by the addition of two half-courses, — Pre-historic Archaeology, and American Ethnology. Dr. Russell has been reappointed Instructor in Anthropology and has been made a member of the Faculty of Arts and Sciences. Mr. Dixon has been reappointed Assistant in Anthropology and will lecture in the half-course on Primitive Religions.

F. W. PUTNAM,  
*Peabody Professor and Curator  
of the Peabody Museum.*

## THE SEMITIC MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — Since the report for 1897-98 there have been considerable additions to the Museum collections. From Mr. Jacob H. Hecht, of Boston, we have received by gift a diminutive roll of the *Torah* or Law, a copy of *Hagadah for Passover with English Translation*, and two Jewish "prayer shawls." Mrs. George Linsley, of Newtown, Conn., eighth in descent from President Chauncey, has presented a small Egyptian statuette, brought from Egypt about 1848.

The mounted birds belonging to the Selah Merrill collection have been transferred from the Divinity Faculty Room to the Museum, and most of the other objects of this collection have been unpacked and placed on exhibition, though not yet adequately provided with labels. A few boxes are still in the basement of the Divinity Library. This large accession has made much rearrangement necessary, and has greatly crowded our space. Several cases now in process of construction will give some relief. The transfer of the Merrill collection to the Semitic Museum is in accordance with the terms under which contributions for the purchase were made.

The collection of Babylonian antiquities mentioned in my last report was removed in February, 1899, from the Boston Museum of Fine Arts, where it had been on deposit since August, 1898, to the Semitic Museum. After long negotiation with its owner, it was purchased in July, 1899. This is the most important collection which the Museum has yet acquired, containing nearly 500 cuneiform clay tablets, over 100 stone seal cylinders, many alabaster vases, terra-cotta cones, masks, statuettes, fragments of ivory, and other objects. This collection fills one of the table cases.

It has been necessary to remove to the basement of the Peabody Museum the winged lion which has hitherto stood on the first floor of that building. The space which it occupied was needed to make room for exhibits of the Peabody Museum.



Dr. John Orne has continued his work of cataloguing the Arabic manuscripts. In recognition of his past services in this regard the President and Fellows have appointed him Curator of the Arabic manuscripts belonging to the Museum.

During the year two courses of public lectures on the Semitic collections were held in the lecture-room of the Peabody Museum. The first course was informal in character and was given in January, February, and March. The objects were taken up chronologically, and the lecturers were Professors Lyon, Toy, and H. L. Warren, and Dr. John Orne.

The second course, in March and April, was on the Selah Merrill collection, and was intended primarily for teachers of the Bible in Sunday Schools and elsewhere. Professor Goodale spoke on the Vegetation of Palestine; Professors Lyon, Ropes, and Toy, on Palestine under the Greeks, the Romans, and the Moslems, respectively; Dr. R. A. Daly, on the physical features of Palestine; Mr. Ralph Hoffmann, on the Birds of Palestine; and Dr. Theodore F. Wright, on life in Palestine at the present day. The average attendance on the second course was about 250 persons, and both courses were illustrated by specimens belonging to the Museum. The interest taken in these lectures illustrates how useful the Semitic Museum may be made to the community. This usefulness will be greatly increased when the collection shall be properly housed and displayed. At the close of the second course the hearers by rising vote expressed the wish that other such courses might be arranged. It is hoped that something may be done to meet that wish during the year 1899-1900.

In January, 1899, Mr. Jacob H. Schiff renewed his offer, first made several years ago, of \$25,000 toward the erection of a building. A condition of this offer was that an equal sum for the object should be secured from other sources, and subsequently a time limit was fixed at July 1, 1899. Steps were promptly taken to bring the subject to the attention of persons in Boston, Cambridge, and vicinity, from whom it seemed reasonable to hope for assistance. When the end of June approached about \$18,000 had been promised toward the second \$25,000. On being asked if he would be willing to extend the time, Mr. Schiff replied that he would not; but he offered to double his own subscription, thus furnishing the necessary \$50,000, provided the other contributors would allow their subscriptions to be used toward purchasing materials for the collections of the Museum. To this proposal all consented. Some

later contributions bring the total of these gifts up to \$19,240. There are 98 subscribers and the various amounts contributed are as follows:—

1 of \$1,500 . . . . .	\$1,500	1 of \$70 . . . . .	\$70
10 " 1,000 . . . . .	10,000	22 " 50 . . . . .	1,100
1 " 600 . . . . .	600	1 " 40 . . . . .	40
5 " 500 . . . . .	2,500	1 " 30 . . . . .	30
1 " 250 . . . . .	250	12 " 25 . . . . .	300
1 " 200 . . . . .	200	2 " 20 . . . . .	40
3 " 150 . . . . .	450	15 " 10 . . . . .	150
20 " 100 . . . . .	2,000	2 " 5 . . . . .	10
		<hr/>	
		\$19,240	

The appeal for aid was based on the importance of the Semitic contributions to culture, and the value of our collections not only to the University but to the community in general. It is a great pleasure to bear witness to the cordial manner of the response to this appeal. Some of the most efficient helpers were persons whose names do not appear in the list of donors. The entire sum of nearly \$20,000 is available for purchases, and makes large additions to the collections possible.

It seems desirable that the building to be erected should not be too remote from the centre of University life nor from the other great museum buildings. The President and Fellows have assigned for the Semitic Building a site on Divinity Avenue south of the Peabody Museum, a location which meets the requirements of the case.

Plans are now in course of preparation, and it is hoped to begin the construction in the spring of 1900. The new building is to furnish a home not only for the collections of the Museum, but also for the Semitic Library and the Semitic instruction. The first floor will probably contain the lecture rooms and the Library, while the second and third floors will contain the exhibition halls. The building will be so designed as to allow enlargement with the growing needs of the collections.

D. G. LYON, *Curator*.

## THE FOGG ART MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY :

SIR, — I have the honor to submit the following report on the Fogg Art Museum for the year 1898-99 :

But one addition was made to the collection of casts, namely, a Discobolus, a reduced copy of the marble statue in the Lancellotti palace, Rome, which is a gift from Mr. Edward Robinson of Boston. In this copy the head is in a different position from that of the well known copy in the Vatican, of which our Museum has a full size cast. A new cast of the Mounted Nereid from Epidaurus, of which the original is now in the Museum of Athens, has been obtained to replace a former one which was destroyed by an accident.

Our resources have again been so small that few additions to our collection of photographs could be made during the year. The number acquired was 1,307, making the total number to September 1st, 27,370. The groups to which the additions were made are : German, Dutch, Flemish, French, and Italian painting ; French, German, and Italian Architecture of the Middle Ages and the Renaissance ; and Egyptian and Arabian Architecture. We have received by gift from the Art Institute of Chicago 14 photographs of Dutch and Flemish paintings. The following books have also been received : A catalogue of the Museum of Antiquities in Constantinople, a memorial volume on the late William Hayes Fogg (a gift from the Rev. S. H. Hayes), and a catalogue of casts of Greek and Roman Sculptures in the Museum of Fine Arts, Boston, which is a gift from that institution.

The accessions of slides were 613 in number, making the number in the whole collection at the close of the year 2,141.

The following additions were made to the collection of drawings belonging to the Fine Arts Department, and deposited in the Museum : A view on the Thames by Moonlight, by David Cox (water color), Stone House near Plymouth, by Samuel Prout (water color), Lisieux, by Henry Edridge (pen and wash), Harlech Castle, by John Varley (water color), Rievaulx Abbey, by C. S. Munn (water color), Bishop's Bridge, by T. Girtin (water color), and Minster Church, by Peter de Wint (water color). These are all characteristic examples of the works of the early English water color school.

The Fine Arts Department has also acquired during the year, and deposited in the Museum, 71 lithographic prints by the French painter Calame.

During the year Mr. E. W. Forbes, '95, imported, and deposited in the Museum as an indefinite loan, the following original works: A Florentine *Tabernacolo* in tempera, which is a characteristic, and an exceedingly fine, example of Florentine painting in the fifteenth century—and may be the work of Verocchio or Filippo Lippi; an Adoration of the Magi, of the school of Ferrara, also in tempera, or tempera and oil, and perhaps by Lorenzo Costa; a portrait of a Procurator of St. Mark, in oil color, having the characteristics of the work of Tintoretto; a Meleager, head and torso of a Greek marble statue; a Battle of Amazons, three parts of a Greco-Roman sarcophagus relief in marble; and a small Aphrodite head in marble. In addition to these Mr. Forbes has a tempera painting of a Madonna and Child with Saints, by Benvenuto di Giovanni of the school of Siena, which will shortly be added to this collection. The Florentine tempera had been given by a member of the Torlonia family to the Nunnery of the Tor dei Specchi in Rome, where Mr. Forbes purchased it. The portrait of a Procurator of St. Mark was purchased from Count Macchi of Rome, a member of the Priuli family to which the personage represented belonged. The Meleager statue was found about three years ago at San Marinella, 80 miles from Rome, and about 100 yards from the spot where the Meleager now in the Berlin Museum was found. It is mentioned by Petersen (*Mittheilungen des Kaiserlich Deutschen Archaeologischen Instituts, Romische Abtheilung, Band X, p. 92*). Its nobility and beauty, as a whole, seem to warrant the belief that it is Greek work of the fourth century. Some of its details, however, suggest that it may be a copy, though by a Greek workman, of a later period. The quiet restraint of its pose and modelling, the fine rhythm of its lines, its subtle vitality, and the refined execution in every part, are in the spirit of the finest Greek art. We know little, from authentic remains, of the art of Scopas; but these qualities, together with the peculiar treatment, and expression, of the head, are in accord with what is supposed to have been the character of his work. It is certainly a work of great beauty. The Aphrodite head was lately excavated in Athens, and it appears like a fragment of Greek work of, perhaps, the third century B.C. The Amazon relief is Greco-Roman and may have been wrought at any period from the time of Augustus to that of Hadrian. This relief was purchased from the Baracco collection in Rome.



These are all good examples of the various schools of art to which they belong; and they are of great importance to us, being, with exception of the small collection of Greek vases loaned by Mr. E. P. Warren ('83) and the prints in the Gray and Randall collections, our first acquisitions of original works. For the proper equipment of a working University Museum such works are indispensable. It cannot often happen, though it is not impossible, that works of the highest character shall come into our hands; but any genuine specimens of the sculpture and painting of great epochs are of value in teaching. Mr. Forbes' collection is an unusually good one, and several of the objects in it are, as I have said, of great excellence. In accepting gifts, or loans, we must exercise care to guard against unsuitable and spurious works; but with the increase of interest in such things as are most desirable, we may hope, in the course of time, to receive other important additions.

The accessions to the print collections for the year are as follows: To the Gray collection, by purchase, an etching, entitled *Statue of the Virgin*, by Antonio Canal (commonly called Canaletto); an etching, entitled *Philon the Jew*, by Rembrandt; an etching, a copy after the foregoing, by James Bretherton; an engraving, *The Virgin weeping over the dead body of Christ*, by Marc-Antonio, after Raphael; and an etching, a portrait of Cardinal Bentivoglio, by Jean Morin, after Van Dyck. The following books, also, were added to the Gray collection: *A Gothic Alphabet* (a publication of the International Chalcographical Society for the year 1897), Bewick's *British Birds*, and (by gift from the author, Mr. Sidney Colvin of the British Museum) a *Guide to an Exhibition of Drawings and Etchings by Rembrandt, and etchings by other masters*.

The accessions to the Randall Collection, by purchase, are: 288 prints after Turner, bound in five volumes, and including the illustrations to Byron, Campbell, Moore, Milton, Bunyan, the Bible series, the Rivers of France, Rogers' Poems, Rogers' Italy, and Scott's Prose works, Poetry, and Novels. Among the noted engravers represented in this series are: Allen, Brandard, Finden, Goodall, Armytage, and Miller. The prints are all proofs, many of them before letters, on India paper. To the Randall Collection have also been added the following books: *The Master E. S. and the "Ars Moriendi,"* by Lionel Cust, and *Notes on Turner's Liber Studiorum*, by Pye and Roget.

For the increase and improvement of the print collections only a small amount annually can be expended. Of the two funds, which together yield an income of less than \$2,000, the larger part has

necessarily to be devoted to the expenses of care and administration. The sums available for purchases being, therefore, very small, the question of a general policy with respect to accessions calls for consideration. Very costly prints cannot be acquired unless we allow our funds to accumulate, and of prints which may cost thousands of dollars each, very few can be procured even by waiting a long time. But costly prints are not always the most valuable from the point of view of artistic excellence, or from that of the general needs of a working collection. Moreover, both the Gray and the Randall collections already contain a considerable number of such prints. It would seem that our aim should rather be to improve the collections by substituting better prints of moderate cost for poorer ones, when opportunities offer, and by filling gaps, of which there are many, in important groups. In this way desirable accessions may be constantly made; and it is on this principle that we have proceeded since the collections have been in this Museum.

The number of photographs catalogued and arranged in the cases was 3,182. The number of slides catalogued was 860. Work was also begun on subject lists (which are much needed to facilitate the use of the photographs), and a list of portraits, including those in painting and sculpture, was nearly completed. This is one of the longest lists that will have to be made, and it already fills 114 sheets.

Photographs were loaned to members of the University, for use in instruction, and to the Institute of Technology, 170 times. Slides were loaned to members of the University, to the Institute of Technology, to Wellesley College, and to several outside individuals, 29 times. The number of visitors who had access to photographs from cases during the year was 952. From November 10, when the visitor's book was opened, the number was 734. Of these 343 were members of the University, including students of the Summer School. Of general visitors, who number many thousands in the course of the year, no record is kept.

A catalogue of the Gray Collection arranged by designers is well advanced; but the principal work in the Print Department has been done on the Randall Collection. A large number of the prints of this large collection have been sorted, and the more important ones separated from those of less value. Nearly half of these have been remounted, placed in wrappers, and moved from the basement to the cases in the print room. The arrangement of these prints in the cases has been changed from an alphabetical one by engravers, grouped by processes, to an arrangement corresponding to that of the Gray

Collection, i. e., a chronological arrangement by countries under the divisions of reliefs, intaglios, and planographic processes.

The number of visits by persons seeking access to the print collections for study was 274. From November 9, when the registration book of the Print Department was opened, the number of such visits was 231, of which 138 were by members of the University.

Early in the year a portion of the basement was enclosed, and fitted up as a workroom for the cleaning, pressing, and mounting of prints. This room, with its equipment, affords conveniences for mounting and remounting photographs also; and by doing this work ourselves the cost is considerably reduced, while the inconvenience and risk of sending large numbers of photographs to be mounted in Boston are avoided.

CHARLES H. MOORE, *Director*.

## MINERALOGICAL MUSEUM AND LABORATORIES OF MINERALOGY AND PETROGRAPHY.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — The same courses have been given as in previous years by Drs. Palache and Eakle and by myself. The course in Elementary Petrography was taken by 14 students, the largest in the history of the course.

Last summer a fire-proof brick cell was built against the present outside south wall of the Museum on the basement level, and the electrical power and light machinery necessary for the lathes and stereopticons moved there from the basement of the geological section, while the former basement assay room inside the building received the rock cutting machinery, to be driven by shafting carried through the wall from the motor. Two desirable rooms were thus vacated for other purposes and the electrical apparatus excluded from the building proper. The Petrographic Laboratory has thus completed by successive moves the tour of the whole Museum building.

Few important additions were made to the collections; a half dozen interesting meteorites were purchased from Henry A. Ward and a large branching fulgurite (lightning-tube). The valuable educational series of rocks was received from the U. S. Geological Survey, and a series of Cripple Creek ores and minerals acquired, among which were some crystals of the gold-silver telluride *Cala-verite* from which Dr. Palache was able to determine the crystal system of this mineral. The Museum also received from the Kimball heirs the collection of minerals formerly in the gallery of the *Boston Museum*.

The following original papers were published : —

A biotite-tinguaite dike from Essex Co., Mass., by A. S. EAKLE. *Amer. Jour. Sci.*, Dec., 1898.

Miargyrit von Zacatecas Mexico, by A. S. EAKLE. *Zeit. für Krystallog.*, Vol. XXXI, 1899.

Powellite crystals from Michigan, by CHARLES PALACHE. *Amer. Jour. Sci.*, May, 1899.



The following "Contributions from the Harvard Mineralogical Museum" in the *Proceedings of the Amer. Acad. Arts and Sciences*:

III. On the optical characters of the vertical zone of amphiboles and pyroxenes; and on a new method of determining the extinction angles of these minerals by means of cleavage pieces, by R. A. DALY, Feb., 1899.

IV. A comparative study of etch figures. The amphiboles and pyroxenes (with 4 plates). by R. A. DALY, March, 1899.

V. A new variety of Hornblende, by R. A. DALY, March, 1899.

[VI. A new zinc pyroxene from Franklin Furnace, by JOHN E. WOLFF (not yet published), April, 1899.]

VII. On Hardystonite, a new calcium-zinc silicate from Franklin Furnace, N. J., by JOHN E. WOLFF, April, 1899.

VIII. Petrographical notes on some rocks from the Fiji Islands, by A. S. EAKLE, May, 1899.

Dr. Eakle has also become American editor for Groth's *Zeitschrift für Krystallographie* and published there numerous abstracts of American mineralogical literature.

Dr. Palache was a member of the Harriman expedition to Alaska and has brought back interesting petrographical material. The Curator has completed the study of the area of crystalline rocks in western Massachusetts and Vermont (contained in the forthcoming Taconic atlas folio of the U. S. Geological Survey), and has also spent much time on the minerals and geology of Franklin Furnace.

JOHN E. WOLFF, *Curator*.

## RADCLIFFE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to present my report on the condition of Radcliffe College during the academic year 1898–99.

The number of students in actual attendance during the year was 421, as against 424 during the preceding year.

Graduate Students . . . . .	54
Seniors . . . . .	61
Juniors . . . . .	45
Sophomores . . . . .	65
Freshmen . . . . .	67
Special Students . . . . .	129
Total . . . . .	421

At the Commencement in June, 1899, sixty students, two of whom had completed their work in previous years and had not been registered as Seniors in 1898–99, received the degree of Bachelor of Arts. Two of the sixty received the degree *summa cum laude*; twenty-two received the degree *magna cum laude*; seventeen received the degree *cum laude*, making a total of forty-one to receive the degree with distinction. Three Seniors failed to receive the degree.

Fourteen students, one of whom had not been registered in 1898–99, received the degree of Master of Arts. Three of the fourteen had taken their first degree at Radcliffe; the others represented the following colleges and universities: Boston University, Bryn Mawr College, McGill University, University of Michigan, University of Pennsylvania, Smith College, Wellesley College, Wesleyan University; one was the holder of an Honor Certificate from the University of Oxford, England. Eight of the Alumnae who held the A.B. Certificate and two who held the A.M. Certificate of the Society for the Collegiate Instruction of Women, exchanged those certificates for the corresponding degrees of Radcliffe College. Of the sixty-five holders of the Society's A.B. Certificate, fifty-nine have now exchanged those certificates for the Radcliffe degree.

Examinations for admission were held in June and July, 1899, in New York, Chicago, Cincinnati, Fall River, Philadelphia, Portland (Me.), Quincy, Springfield, St. Louis, St. Paul, Worcester, and

Youngstown (O.), as well as in Cambridge. In September, 1899, they were held in Cambridge. Three hundred and forty-one candidates presented themselves for examination; thirty-nine were candidates for admission as special students; fifty-seven candidates took part of the examination or made up admission conditions. One hundred and thirty took the Preliminary Examinations, and one hundred and fifteen the Final Examinations. The results of the Final Examinations are given in the following table:—

	Admitted.	Admitted "Clear."	Rejected.
June . . . . .	98	48	9
September . . . . .	8	1	0
Total . . . . .	106	49	9
Total rejected . . .	9		
	115		

One hundred and six candidates were admitted as Freshmen in 1899, as against one hundred and two in 1898.

Sixty-one Graduate Students registered during the year, forty-five of whom were from other colleges than Radcliffe. Seven of the forty-five entered the Senior Class, and five received the degree of Bachelor of Arts. Seventeen students were admitted to ten full courses, and seventeen students to eight half-courses of the "Courses primarily for Graduates in Harvard University open to competent students of Radcliffe College."

Classical Philology was taken . . . . .	by four students.
Germanic Philology was taken . . . . .	by six students.
Romance Philology was taken . . . . .	by one student.
French was taken . . . . .	by one student.
Comparative Literature was taken . . . . .	by two students.
History was taken . . . . .	by three students.
Government was taken . . . . .	by three students.
Philosophy was taken . . . . .	by one student.
Education and Teaching was taken . . . . .	by eleven students.
Mathematics was taken . . . . .	by two students.

The number of courses offered in 1898-99 was 180, by 104 professors and instructors in Harvard University.

The members of the Academic Board for 1898-99 were: Professors Byerly (*Chairman*), Greenough, Mark, Wright, Macvane, B. O. Peirce, von Jagemann, Grandgent, and Kittredge, and the President and Dean of Radcliffe College.

The gifts and bequests of the year amount to \$52,599, actually received by the Treasurer; \$25,000 of this sum was the final payment on the Gymnasium, given by Mrs. Augustus Hemenway on the

completion of the building. The Treasurer received from Miss Isa E. Gray the sum of \$500 entrusted to her by Miss Hovey, before her death, for the purpose of completing the swimming-pool. Other sums are as follows:—

From the estate of Edward Austin, a legacy of \$30,000, “for poor teachers and students, to help them in the payment of their studies.” This bequest was reduced by taxation to \$25,500. The legal expenses in the settlement of the estate amounting, for Radcliffe’s share, to \$150, were generously borne by Mr. Edward W. Hooper, the executor of Mr. Austin’s estate.

From the students of Radcliffe College, past and present, the sum of \$1,049, to be expended by Miss Mary Coes for the College in any way which seems to her best.

From Miss Marian C. Jackson, the sum of \$400, collected by Mrs. Walter Channing for instruction in the Principles of the Kindergarten.

In April, 1899, the College purchased from the heirs of Mary Tolman the ground and two houses, 5 and 7 Appian Way, thus adding 10,158 square feet to the Radcliffe precincts.

The accompanying tables have been compiled to show the increase in the number of students, and the income from tuition fees since the foundation of the institution:—

	No. of Students.	Tuition Fees.		No. of Students.	Tuition Fees.
1879-80 . . .	25	\$3,725.00	1889-90 . . .	142	\$20,018.32
1880-81 . . .	47	4,786.25	1890-91 . . .	174	25,035.00
1881-82 . . .	38	5,017.50	1891-92 . . .	241	34,010.00
1882-83 . . .	41	3,899.38	1892-93 . . .	263	37,240.00
1883-84 . . .	49	5,581.25	1893-94 . . .	255	42,845.00
1884-85 . . .	55	7,193.75	1894-95 . . .	284	49,626.83
1885-86 . . .	73	9,661.25	1895-96 . . .	358	58,272.34
1886-87 . . .	90	12,113.75	1896-97 . . .	370	63,219.45
1887-88 . . .	103	13,475.00	1897-98 . . .	424	71,799.00
1888-89 . . .	115	15,460.69	1898-99 . . .	421	72,847.97

On the 18th of October, 1899, Mrs. Agassiz resigned the office of President of Radcliffe College, the resignation to take effect on the 1st of January 1900. No one who knows the history of the College can fail to know what Mrs. Agassiz has been to the institution since the early days of the Society for the Collegiate Instruction of Women; her wisdom and her judgment have gone far to make Radcliffe what it is; but she had borne the burden of responsibility for twenty years, and she felt that the time had come when, for her own sake, she must lay it down. The Associates received her letter of resignation with the deepest regret: and in a Minute drawn up by a



Committee, of which Professor Charles Eliot Norton was Chairman, they express their unwillingness "to consent that her formal official relation with the College should be broken, and they request her to accept the position of Honorary President of the College, in which, freed from responsibility for the discharge of specific duties, she may still afford to the active officers of the College the benefit of her counsel, and still give to the College the honor of having her name at its head."

This position Mrs. Agassiz has consented to accept, and while she will have the freedom from care which she has so nobly earned, the College will retain the relation to her which it so highly values, and which it would so unwillingly lose.

AGNES IRWIN, *Dean*.

## APPENDIX.

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### RESIGNATIONS.

- HENRY PARKER QUINCY, Instructor in Histology, to take effect September 1, 1898. October 10, 1898.
- ELISHA HALL GREGORY, Jr., Instructor in Histology and Embryology, to take effect September 1, 1898. October 10, 1898.
- FERNALD LESTER HANSON, Assistant in History. October 10, 1898.
- FRANK TURNER TAYLOR, Instructor in Operative Dentistry. October 24, 1898.
- WILFRED GEORGE GARNET COLE, Member of the Board of Examination Proctors, to take effect September 1, 1898.
- AMOS LAWRENCE MASON, Associate Professor of Clinical Medicine, to take effect September 1, 1899. June 12, 1899.
- WILLIAM PEPPERRELL MONTAGUE, Assistant in Philosophy. June 27, 1899.
- ARTHUR RICHMOND MARSH, Professor of Comparative Literature, to take effect September 1, 1899. September 26, 1899.
- ALBERT MORTON LYTHGOE, Instructor in Egyptology. September 26, 1899.
- CHARLES WHITNEY MIXTER, Instructor in Political Economy. September 26, 1899.
- GEORGE THOMAS MOORE, Assistant in Cryptogamic Botany. September 26, 1899.
- WILMON HENRY SHELDON, Assistant in Philosophy. September 26, 1899.
- ARTHUR LYON CROSS, Assistant in History, to take effect September 1, 1899.
- ROBERT WARREN FULLER, Assistant in Chemistry, to take effect September 1, 1899.
- AUGUSTUS SMITH KNIGHT, Assistant in Clinical Medicine, to take effect September 1, 1899.
- ALFRED DWIGHT SHEFFIELD, Assistant in English, to take effect September 1, 1899.
- JAMES SULLIVAN, Assistant in Government, to take effect September 1, 1899.
- RALPH WALDO CONE, Proctor, to take effect September 1, 1899.
- ROBERT WARREN FULLER, Proctor, to take effect September 1, 1899.
- CHARLES GRILK, Proctor, to take effect September 1, 1899.
- CARL TROWBRIDGE ROBERTSON, Proctor, to take effect September 1, 1899.
- ALFRED DWIGHT SHEFFIELD, Proctor, to take effect September 1, 1899.
- JAMES SULLIVAN, Proctor, to take effect September 1, 1899.

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### APPOINTMENTS.

[WITHOUT LIMIT OF TIME, OR FOR MORE THAN ONE YEAR.]

- CLEMENT LAWRENCE SMITH, to be Dean of the Faculty of Arts and Sciences, from September 1, 1898. October 10, 1898.
- |   |   |  |
|---|---|--|
| CHARLES ELIOT NORTON,<br>CHARLES FRANKLIN DUMBAR,<br>CRAWFORD HOWELL TOY,<br>GEORGE LINCOLN GOODALE,<br>MORRIS HICKY MORGAN,<br>GEORGE LYMAN KITTREDGE, | } | To be members of the Council of the Library for three years from January 1, 1897. November 14, 1898. |
|---|---|--|

- OLIVER CLINTON WENDELL, to be Assistant Professor of Astronomy, for five years from September 1, 1898. November 28, 1898.
- WILLIAMINA PATON FLEMING, to be Curator of Astronomical Photographs, from September 1, 1898. November 28, 1898.
- WILLIAM MORRIS DAVIS, to be Sturgis-Hooper Professor of Geology. December 27, 1898.
- ROBERT WHEELER WILLSON, to be Assistant Professor of Astronomy, for five years from March 1, 1899. December 30, 1898.
- PHILIPPE BELKNAP MARCOU, to be Assistant Professor of Romance Languages, for five years from March 1, 1899. December 30, 1898.
- CHARLES ROBERT SANGER, to be Assistant Professor of Chemistry, for five years from September 1, 1899. January 9, 1899.
- MORRIS HICKY MORGAN, to be Professor of Classical Philology, from September 1, 1899. March 13, 1899.
- MINTON WARREN, to be Professor of Latin, from September 1, 1899. March 13, 1899.
- ROBERT TRACY JACKSON, to be Assistant Professor of Palaeontology, for five years from September 1, 1899. March 13, 1899.
- JENS IVERSON WESTENGARD, to be Assistant Professor of Law, for five years from September 1, 1899. March 13, 1899.
- JAY BACKUS WOODWORTH, to be Instructor in Geology, from September 1, 1899. March 13, 1899.
- JOHN ORNE, Jr., to be Curator of Arabic Manuscripts in the Semitic Museum. March 13, 1899.
- CHARLES BURTON GULICK, to be Assistant Professor of Greek, for five years from September 1, 1899. March 27, 1899.
- ARCHIBALD CARY COOLIDGE, to be Assistant Professor of History, for five years from September 1, 1899. April 10, 1899.
- HERBERT LANGFORD WARREN, to be Professor of Architecture, from September 1, 1899. May 8, 1899.
- WALTER SAFFORD BURKE, to be Assistant Professor of Mechanical Engineering, for five years from September 1, 1899. May 8, 1899.
- ASAPH HALL, to be Lecturer on Celestial Mechanics, from September 1, 1899. May 8, 1899.
- IRVING BABBITT, to be Instructor in French, from September 1, 1899. May 8, 1899.
- CHARLES PALACHE, to be Instructor in Mineralogy, from September 1, 1899. May 8, 1899.
- FRANK RUSSELL, to be Instructor in Anthropology, from September 1, 1899. May 8, 1899.
- WILLIAM HENRY SCHOFIELD, to be Instructor in English, from September 1, 1899. May 8, 1899.
- ROBERT DECOURCY WARD, to be Instructor in Climatology, from September 1, 1899. May 8, 1899.
- FRÉDÉRIC CÉSAR DE SUMICHRAST, to be Associate Professor of French, from September 1, 1899. May 15, 1899.
- OLIVER FAIRFIELD WADSWORTH, to be Williams Professor of Ophthalmology. May 29, 1899.
- JOHN COLLINS WARREN, to be Moseley Professor of Surgery. May 29, 1899.
- WILLIAM HENRY PICKERING, to be Assistant Professor of Astronomy, for five years from September 1, 1899. May 29, 1899.

- MAXIME BÔCHER, to be Assistant Professor of Mathematics, for five years from September 1, 1899. May 29, 1899.
- THEODORE WILLIAM RICHARDS, to be Assistant Professor of Chemistry, for five years from September 1, 1899. May 29, 1899.
- CHARLES MONTRAVILLE GREEN, to be Assistant Professor of Obstetrics, for five years from September 1, 1899. May 29, 1899.
- HERBERT LESLIE BURRELL, to be Assistant Professor of Surgery, for five years from September 1, 1899. May 29, 1899.
- ALFRED LUDWIG THEODOR SCHAPER, to be Assistant Professor of Histology, for five years from September 1, 1899. May 29, 1899.
- GEORGE FREDERIC NEWTON, to be Instructor in Designing and Drawing, from September 1, 1899. May 29, 1899.
- WILLIAM HENRY POTTER, to be Lecturer in Operative Dentistry, for three years from September 1, 1899. September 26, 1899.

## [FOR ONE YEAR OR LESS.]

*For 1898-99.*

- ALBERT VENN DICEY, to be Lecturer on Changes in the English Law during the Nineteenth Century. October 10, 1898.
- GEORGE HERBERT LOCKE, to be Instructor in the History and Art of Teaching. October 10, 1898.
- |  |   |  |
|--|---|--|
| WILLIAM WARREN BELL. History.            | } | To be Assistants.<br>October 10, 1898. |
| EDWARD PARRISH CARR. Philosophy.         |   |  |
| MICHAEL JAMES GLEN CUNNIFF. English.     |   |  |
| FRAZIER CURTIS. English.                 |   |  |
| WALLACE BRETT DONHAM. Government.        |   |  |
| WILLIAM EDWIN DORMAN. History.           |   |  |
| GOLDTHWAITE HIGGINSON DORR. English.     |   |  |
| RICHARD THORNTON FISHER. English.        |   |  |
| FRANK HENRY GAZZOLO. Chemistry.          |   |  |
| GEORGE WILLIAM HEIMROD. Chemistry.       |   |  |
| HECTOR JAMES HUGHES. Mechanics.          |   |  |
| GEORGE DEKKER MARVIN. English.           |   |  |
| BENJAMIN SHORES MERIGOLD. Chemistry.     |   |  |
| WILLIAM PEPPERRELL MONTAGUE. Philosophy. |   |  |
| FREDERICK POPE. Mechanical Drawing.      |   |  |
| CHARLES HENRY RIEBER. Philosophy.        |   |  |
| CARL TROWBRIDGE ROBERTSON. Chemistry.    | } | To be Proctors. October 10, 1898.      |
| WILMON HENRY SHELDON. Philosophy.        |   |  |
| JAMES REVERDY STEWART. Applied Zoölogy.  |   |  |
| JONAS VILES History.                     |   |  |
| WALTER GUSTAVUS WAITT. Chemistry.        |   |  |
| GOLDTHWAITE HIGGINSON DORR.              |   |  |
| JAMES SULLIVAN.                          |   |  |
| NORMAN MACLAREN TRENHOLME.               |   |  |
- AUGUSTUS PEABODY GARDNER, to be a Graduate Member of the Committee on the Regulation of Athletic Sports. October 24, 1898.
- THOMAS CARR HOWE, to be Instructor in German. October 24, 1898.
- DWIGHT WARD DICKINSON, to be Instructor in Operative Dentistry. October 24, 1898.



OAKES AMES. Botany.  
 ROGER TROWBRIDGE ATKINSON. Histology.  
 DANIEL FRANCIS CALHANE. Chemistry.  
 JOHN HEISS. German.  
 LAWRENCE JOSEPH HENDERSON. Chemistry.  
 CARL FREDERICK AUGUSTUS LANGE. German.  
 EDWARD MALLINCKRODT, Jr. Chemistry.  
 WILLIAM MAXWELL REED. Astronomy.  
 FRANK RAYMOND STUBBS. Histology.  
 SIMON EVERARD WILLIAMS. Chemistry.

To be Assistants.

October 24, 1898.

MORTON ARNOLD ALDRICH.  
 JOHN CHARLES STATES ANDREW.  
 GEORGE WYLLYS BENEDICT.  
 JOHN MASON BOUTWELL.  
 HARRISON HITCHCOCK BROWN.  
 GUY STEVENS CALLENDER.  
 WALTER BRADFORD CANNON.  
 PAUL CAPRON.

WILFRED GEORGE GARNET COLE.  
 EDWIN HENRY COLPITTS.  
 RALPH WALDO CONE.  
 ARTHUR LYON CROSS.  
 WALLACE BRETT DONHAM.  
 JOHN WINTHROP DOW.  
 WINTHROP EDWARDS FISKE.  
 FRANK HENRY GAZZOLO.  
 DAVID GIBBS.

ROBERT WILLIAM HALL.  
 FREDERIC HOUSTON KENT.  
 CYRUS AMBROSE KING.  
 HENRY BARRETT LEARNED.  
 GEORGE RICHARD LYMAN.  
 WILLIAM EDWARD McELFRESH.  
 WILLIAM JOSEPH MILLER.  
 GEORGE THOMAS MOORE.  
 JOHN FREDERICK NEAL.  
 EDGAR WILLIAM OLIVE.  
 JAMES HORACE PATTEN.  
 CHARLES WILLIAM PRENTISS.  
 WILLIAM MAXWELL REED.  
 HENRY LINDSAY SANFORD.  
 CHARLES EDWARD SEAMAN.  
 ALFRED DWIGHT SHEFFIELD.  
 PRESCOTT ORDE SKINNER.

To be members of the Board of Examination Proctors. October 24, 1898.

JAMES SULLIVAN.  
 NORMAN MACLAREN TRENHOLME.  
 JOSEPH PARKER WARREN.  
 ALVIN SAWYER WHEELER.  
 STEPHEN RIGGS WILLIAMS.  
 SIDNEY RUSSELL WRIGHTINGTON.

- SAMUEL SILAS CURRY, to be Instructor in Elocution. November 14, 1898.
- ARTHUR BLISS SEYMOUR, to be Assistant in the Cryptogamic Herbarium.  
November 14, 1898.
- CHARLES GRILK. Elocution.
- THOMAS HARVEY HAINES. Psychology. } To be Assistants. November 14, 1898.
- VICTOR SUMNER THOMAS. English. }
- JULIUS GEORGE WILLIAM WERNER, to be Clinical Instructor in Operative  
Dentistry. November 14, 1898.
- ARTHUR HENRY STODDARD, to be Clinical Lecturer in Mechanical Dentistry.  
November 14, 1898.
- JOHN DANA DICKINSON, to be Clinical Instructor in Mechanical Dentistry.  
November 14, 1898.
- GEORGE NEELY HENNING, } To be Proctors. November 14, 1898.
- CARL TROWBRIDGE ROBERTSON, }
- ALBERT HITCHINGS NEWHALL, to be a member of the Board of Examination  
Proctors. November 14, 1898.
- GEORGE WASHINGTON CRAM, to be a member of the Administrative Board of  
Harvard College. November 28, 1898.
- CHARLES BEARDSLEY, to be Instructor in Economics. November 28, 1898.
- EDWARD SKINNER KING, to be Assistant in the Observatory. November 28,  
1898.
- ARTHUR CHARLES ROUNDS, to be Lecturer on Pleading and Practice under the  
New York Code. December 12, 1898.
- ROBERT GRAY DODGE, to be Instructor in Law. December 12, 1898.
- ROBERT GREENLEAF LEAVITT. Botany. } To be Assistants.
- CHARLES HENRY WHITE. Mining and Metallurgy. } December 12, 1898.
- JAMES SULLIVAN, to be Assistant in Government. December 12, 1898.
- OLIVER MITCHELL WENTWORTH SPRAGUE, to be Proctor. December 12, 1898.
- ALBERT MORTON LYTHGOE, to be Instructor in Egyptian Archaeology. Decem-  
ber 12, 1898.
- CHARLTON THOMAS LEWIS, to be Lecturer on the Principles of Life Insurance.  
December 27, 1898.
- JAMES JACKSON STORROW, to be Lecturer on Patent Law. December 27, 1898.
- WILLIAM HENRY GORRILL, to be Assistant in Government. December 27, 1898.
- ROY CAMPBELL SMITH, to be Lecturer on Military and Naval Science. Decem-  
ber 30, 1898.
- FRANKLIN WARREN WHITE, to be Assistant in Physiological Chemistry. Feb-  
ruary 6, 1899.
- EDMUND MORTIMER BLAKE, to be Assistant in Surveying. February 13, 1899.
- HENRY TURNER BURR, to be Assistant in Meteorology. February 27, 1899.
- HARRY KELLY BRENT. } To be Proctors. March 13, 1899.
- THOMAS HARVEY HAINES. }
- OAKES AMES, to be Assistant Director of the Botanic Garden, from January 1,  
1899, to January 1, 1900. November 14, 1898.
- WILLIAM STURGIS BIGELOW, ARTHUR ASTOR CAREY, ARTHUR TACY CABOT,  
to be Trustees of the Museum of Fine Arts from January 1, 1899, to  
January 1, 1900. November 28, 1898.
- JOHN GEORGE JACK, to be Lecturer at the Arnold Arboretum, from January 1,  
1899, to January 1, 1900. April 24, 1899.

*For 1899-1900.*

EZRA RIPLEY THAYER, to be Lecturer on Massachusetts Practice. May 15, 1899.

HARRY AUGUSTUS BIGELOW, to be Instructor in Criminal Law. May 15, 1899.

CHARLES HOMER HASKINS, to be Lecturer on History. May 8, 1899.

JAMES PIERPONT, to be Lecturer on Mathematics. May 8, 1899.

EDWARD ROBINSON, to be Lecturer on Classical Archaeology. May 8, 1899.

MARSHALL HENRY BAILEY, to be Medical Visitor. May 8, 1899.

CHARLES HAMILTON ASHTON. Mathematics.

CHARLES LEONARD BOUTON. Mathematics.

ALPHONSE BRUN. French.

WILLIAM ERNEST CASTLE. Zoölogy.

RICHARD COBB. English.

REGINALD ALDWORTH DALY. Physiography.

ARTHUR STARR EAKLE. Mineralogy.

JEREMIAH DENIS MATTHIAS FORD. French.

ROBERT JAY FORSYTHE. Metallurgy and Metallurgical Chemistry.

ARTHUR BOWES FRIZELL. Mathematics.

THOMAS HALL, Jr. English.

JOHN GODDARD HART. English.

GEORGE NEELY HENNING. French.

THOMAS AUGUSTUS JAGGAR, Jr. Geology.

FRANCIS LOWELL KENNEDY. Mechanical Drawing.

ALPHONSE MARIN LA MESLÉE. French.

GAILLARD THOMAS LAPSLEY. History.

JAMES GRAY LATHROP. Athletics.

ALBERT MORTON LYTHGOE. Egyptology.

WILLIAM EDWARD MCCLINTOCK. Highway Engineering.

ROBERT MACDOUGALL. Philosophy.

GUSTAVUS HOWARD MAYNADIER. English.

DICKINSON SERGEANT MILLER. Philosophy.

WILLIAM VAUGHAN MOSES. Drawing and Machine Design.

ARTHUR ORLO NORTON. The History and Art of Teaching.

CARLTON ELDREDGE NOYES. English.

EDGAR WILLIAM OLIVE. Botany.

HENRY LEE PRESCOTT. English.

BENJAMIN RAND. Philosophy.

GEORGE STAPLES RICE. Sanitary Engineering.

PIERRE LA ROSE. English.

WALTER RAYMOND SPALDING. Music.

JENS IVERSON WESTENGARD. Engineering Contracts and Specifications.

STEPHEN EDGAR WHITING. Electrical Engineering.

JAMES KELSEY WHITTEMORE. Mathematics.

LEO WIENER. Slavic Languages.

IRVAH LESTER WINTER. Elocution.

CHARLES LOWELL YOUNG. English.

To be Instructors.

May 8, 1899.

OAKES AMES Botany.

JOHN MASON BOUTWELL. Physiography.

EDWARD PARRISH CARR. Philosophy.

ROLAND BURRAGE DIXON. Anthropology.

GOLDTHWAITE HIGGINSON DORR. English.

CHESTER NOYES GREENOUGH. English.

FRANCIS LOWELL KENNEDY, in the Engineering  
Laboratory.

HOMER HUNTINGTON KIDDER. English.

ROBERT GREENLEAF LEAVITT. Botany.

GEORGE RICHARD LYMAN. Botany.

DANIEL GREGORY MASON. English.

PHILIP LEE MILLER. English.

WILLIAM PEPPERRELL MONTAGUE. Philosophy.

GEORGE THOMAS MOORE. Botany.

MARTIN MOWER. Fine Arts.

CHARLES WILLIAM PRENTISS. Zoölogy.

CHARLES HENRY RIEBER. Philosophy.

ALFRED DWIGHT SHEFFIELD. English.

WILMON HENRY SHELDON. Philosophy.

WILLIAM ALBERT WILLARD. Zoölogy.

STEPHEN RIGGS WILLIAMS. Zoölogy.

JOSEPH EDMUND WOODMAN. Geology.

EDWARD HENRY HALL, to be Lecturer on the History of Christian Doctrine.  
May 15, 1899.

CHARLES WILLIAM COLBY, to be Lecturer on History. May 29, 1899.

ANDREW GARBUTT. Modelling.

WILLIAM FENWICK HARRIS. Greek.

GILBERT NEWTON LEWIS. Chemistry.

EDMUND ROBERT OTTO VON MACH. History of  
Greek Art.

HENRY WASHINGTON PRESCOTT. Greek and Latin.

GEORGE SHARP RAYMER. Mining.

OTIS FISHER BLACK. Chemistry.

FREDERIC BONNET, Jr. Chemistry.

DANIEL FRANCIS CALHANE. Chemistry.

WALLACE PATTEN COHOE. Chemistry.

MICHAEL JAMES GLEN CUNNIFF. English.

ROBERT WARREN FULLER. Chemistry.

KENNETH LAMARTINE MARK. Chemistry.

BENJAMIN SHORES MERIGOLD. Chemistry.

WALTER DANA SWAN. Architecture.

ALVIN SAWYER WHEELER. Chemistry.

SIMON EVERARD WILLIAMS. Chemistry.

LEROY ALLSTON AMES.

JOHN CHARLES STATES ANDREW.

HARRY AUGUSTUS BIGELOW.

HARRY KELLY BRENT.

WALTER BRADFORD CANNON.

RALPH WALDO CONE.

To be Assistants.

May 8, 1899

To be Instructors.

May 29, 1899.

To be Assistants.

May 29, 1899.

To be Proctors.

May 29, 1899.



MALCOLM DONALD.  
GOLDTHWAITE HIGGINSON DORR.  
CHARLES GRILK.  
THOMAS HARVEY HAINES.  
WILLIAM JAY HALE.  
GEORGE NEELY HENNING.  
FRANCIS ERASTUS HOLIDAY.  
HENRY JAMES, 2d.

GEORGE RICHARD LYMAN.  
WILLIAM EDWARD McELFRESH.  
JOHN FREDERICK NEAL.  
ALBERT HITCHINGS NEWHALL.  
JAMES HORACE PATTEN.  
HERBERT WILBUR RAND.  
CARL TROWBRIDGE ROBERTSON.  
ALFRED DWIGHT SHEFFIELD.  
OLIVER MITCHELL WENTWORTH SPRAGUE.  
JAMES SULLIVAN.  
OLIVER SAMUEL TONKS.  
SIDNEY RUSSELL WRIGHTINGTON.  
ROBERT MEARNS YERKES.

To be Proctors.  
May 29, 1899.

FREDERICK WILKEY, to be Steward of the Randall Hall Association. June 12, 1899.

MORTON ARNOLD ALDRICH. Political Economy.  
GEORGE WILLIS BOTSFORD. History of Greece and Rome.

GUY STEVENS CALLENDER. Political Economy.  
JOHN CUMMINGS. Political Economy.  
CARLOS VALÉRIEN CUSACHS. Spanish.  
HUGO RICHARD MEYER. Political Economy.  
CHARLES WHITNEY MIXTER. Political Economy.  
OLIVER MITCHELL WENTWORTH SPRAGUE. Political Economy.

To be Instructors.  
June 12, 1899.

HARRY AUGUSTUS BIGELOW. Government.  
WILFRED GEORGE GARNET COLE. Classics.  
ARTHUR LYON CROSS. History.  
WALLACE BRETT DONHAM. Government.  
WILLIAM EDWIN DORMAN. History.  
CARL RUSSELL FISH. History.  
ELLIOT HERSEY GOODWIN. Government.  
ALBERT HITCHINGS NEWHALL. History.  
WILLIAM MAXWELL REED. Astronomy.  
GEORGE RUSSELL STOBBS. History.

To be Assistants.  
June 12, 1899.

JAMES SULLIVAN. Government.  
JOSEPH PARKER WARREN. History.  
HAROLD ETHELBERT ADDISON.  
JOHN BOYNTON WILSON DAY.  
ROBERT WARREN FULLER.

To be Proctors.  
June 12, 1899.

ARCHIBALD CARY COOLIDGE.	}	To be a Committee on the Regulation of Athletic Sports. June 19, 1899.
AUGUSTUS PEABODY GARDNER.		
EDWIN HERBERT HALL.		
IRA NELSON HOLLIS.		
JAMES JACKSON STORROW.		
BERTRAM GORDON WATERS.	}	To be Instructors. June 19, 1899.
JOSEPH WILLIAM CARR. German.		
JOHN FIRMAN COAR. German.		
WALTON BROOKS MCDANIEL. Greek and Latin.	}	To be Assistants. June 19, 1899.
CHARLES HAMILTON AYRES. Physics.		
HARRISON HITCHCOCK BROWN. Physics.		
THEODORE LYMAN. Physics.		
WILLIAM EDWARD McELFRESH. Physics.		
THOMAS CALVIN MCKAY. Physics.		
ENDICOTT PEABODY, to be Preacher to the University.		June 27, 1899.
WALTER BRADFORD CANNON, to be Auditor of the Randall Hall Association.		June 27, 1899.
CHARLES PALACHE, to be Acting Curator of the Mineralogical Collections during the absence of Professor WOLFF.		June 27, 1899.
JULIAN LOWELL COOLIDGE, to be Instructor in Mathematics.		June 27, 1899.
WILLIAM JEWETT TUCKER.	}	To be Preachers to the University. September 26, 1899.
CHARLES CUTHBERT HALL.		
ROBERT MACDONALD.		
PAUL REVERE FROTHINGHAM.		
LE BARON RUSSELL BRIGGS.		
JAMES BRADSTREET GREENOUGH.		
FRÉDÉRIC CÉSAR DE SUMICHRAST.		
ROBERT WHEELER WILLSON.		
CHARLES POMEROY PARKER.		
HUGO CARL SCHILLING.		
ALFRED BULL NICHOLS.	}	To be Members of the Administra- tive Board of Harvard College. September 26, 1899.
CHARLES HALL GRANDGENT.		
JOHN HAYES GARDINER.		
ARCHIBALD CARY COOLIDGE.		
LEWIS JEROME JOHNSON.		
GEORGE WASHINGTON CRAM,		
ROBERT DECOURCY WARD.		
CHARLES BURTON GULICK.		
FRED NORRIS ROBINSON.		
CHARLES HENRY CONRAD WRIGHT.		
CHARLES PALACHE.	}	To be Members of the Administrative Board of the Lawrence Scientific School. September 26, 1899.
NATHANIEL SOUTHGATE SHALER.		
IRA NELSON HOLLIS.		
HERBERT LANGFORD WARREN.		
HENRY LLOYD SMYTH.		
HEINRICH CONRAD BIERWIRTH.		
ROBERT TRACY JACKSON.		
JAMES LEE LOVE.		
JOSEPH TORREY.		
GEORGE HOWARD PARKER.		
COMFORT AVERY ADAMS.		

JOHN HENRY WRIGHT.	}	To be Members of the Administrative Board of the Graduate School. September 26, 1899.
CRAWFORD HOWELL TOY.		
CHARLES LORING JACKSON.		
WILLIAM MORRIS DAVIS.		
WILLIAM ELWOOD BYERLY.		
MINTON WARREN.		
BENJAMIN OSGOOD PEIRCE.		
HANS CARL GÜNTHER VON JAGEMANN.		
ALBERT BUSHNELL HART.		
GEORGE LYMAN KITTREDGE.		
HUGO MÜNSTERBERG.		
ABRAM PIATT ANDREW, to be Instructor in Political Economy.		September 26, 1899.
PAUL HECTOR PROVANDIE. Hygiene.	}	To be Assistants. September 26, 1899.
FRANKLIN DUANE ROBINSON. Applied Mechanics and Mechanical Draw- ing.		
JAMES BIRCH RORER. Botany.		
SAMUEL HOLMES DURGIN, to be Lecturer on Hygiene.		June 12, 1899.
CHARLES MONTRAVILLE GREENE, to be Secretary of the Medical Faculty.		June 12, 1899.
VINCENT YARDLEY BOWDITCH. Clinical Medicine.	}	To be Instructors. June 12, 1899.
JOHN TEMPLETON BOWEN. Dermatology.		
EDWARD MARSHALL BUCKINGHAM. Diseases of Children.		
ELBRIDGE GERRY CUTLER. Theory and Practice of Physic.		
EDWIN WELLES DWIGHT. Legal Medicine.		
WILLIAM WHITWORTH GANNETT. Clinical Medi- cine.		
GEORGE HAVEN. Gynaecology.		
HENRY JACKSON. Clinical Medicine.		
JOHN HILDRETH MCCOLLOM. Contagious Diseases.		
GEORGE HOWARD MONKS. Clinical Surgery.		
JOHN CUMMINGS MUNRO. Surgery.		
RICHARD MILLS PEARCE. Pathology.		
CHARLES ALLEN PORTER. Surgery.		
ABNER POST. Syphilis.		
EDWARD REYNOLDS. Obstetrics.		
GEORGE GRAY SEARS. Clinical Medicine.		
EDWARD WYLLYS TAYLOR. Neuropathology.		
BENJAMIN TENNEY. Anatomy.		
HERMAN FRANK VICKERY. Clinical Medicine.		
FRANCIS SEDGWICK WATSON. Genito-Urinary Surgery.		
CHARLES FRANCIS WITHINGTON. Clinical Medicine.	}	To be Clinical Instructors. June 12, 1899.
JAMES HOMER WRIGHT. Pathology.		
HENRY HARRIS AUBREY BEACH. Surgery.		
ALGERNON COOLIDGE, Jr. Laryngology.		
EDWARD COWLES. Mental Diseases.		
THOMAS AMORY DEBLOIS. Laryngology.		

JOHN WOODFORD FARLOW. Laryngology.	} To be Clinical Instructors. June 12, 1899.
GEORGE WASHINGTON GAY. Surgery.	
JOHN HOMANS. Diagnosis and Treatment of Ovarian Tumors.	
PHILIP COOMBS KNAPP. Diseases of the Nervous System.	
EDWARD BINNEY LANE. Mental Diseases.	
GEORGE LINCOLN WALTON. Diseases of the Nervous System.	} To be Assistants. June 12, 1899.
EDWARD HALL NICHOLS, to be Demonstrator of Surgical Pathology.	
SEABURY WELLS ALLEN. Anatomy.	
JOHN LINCOLN AMES. Histology.	
ALFRED WILLIAM BALCH. Pharmacology.	
JOHN BAPST BLAKE. Clinical Surgery.	
CHARLES SHOREY BUTLER. Anatomy.	
HUGH CABOT. Operative Surgery.	
RICHARD CLARKE CABOT. Clinical Medicine.	
FREDERICK EDWARD CHENEY. Ophthalmology.	
ALLEN CLEGHORN. Physiology.	
WILLIAM MERRITT CONANT. Clinical and Operative Surgery.	
JOHN NELSON COOLIDGE. Bacteriology.	
GEORGE ARTHUR CRAIGIN. Diseases of Children.	
EUGENE ANTHONY CROCKETT. Otology.	
LINCOLN DAVIS. Anatomy.	
GEORGE VAN NESS DEARBORN. Physiology.	
FRANCIS PARKMAN DENNY. Bacteriology.	
JAMES CROWLEY DONOGHUE. Histology.	
EDWIN WELLES DWIGHT. Clinical Surgery.	
SHEPHERD IVORY FRANZ. Physiology.	
LOUIS WHITMORE GILBERT. Histology.	
PHILIP HAMMOND. Otology.	
HENRY FOX HEWES. Chemistry.	
FRANK ALBERT HIGGINS. Obstetrics.	
EDWIN EVERETT JACK. Ophthalmology.	
JAMES OSCAR JORDAN. Materia Medica.	
ELLIOTT PROCTOR JOSLIN. Physiological Chemistry.	
AUGUSTUS SMITH KNIGHT. Clinical Medicine.	
RALPH CLINTON LARRABEE. Histology.	
ROBERT GARDNER LORING. Anatomy.	
HOWARD AUGUSTUS LOTHROP. Anatomy.	
FRED BATES LUND. Clinical Surgery.	
GEORGE BURGESS MAGRATH. Pathology.	
SAMUEL JASON MIXTER. Operative Surgery.	
GEORGE HOWARD MONKS. Operative Surgery.	
JOHN LOVETT MORSE. Clinical Medicine.	
HARRIS PEYTON MOSHER. Anatomy.	
WILLIAM MUHLBERG. Physiology.	
JAMES GREGORY MUMFORD. Clinical Surgery.	
FRANKLIN SPILMAN NEWELL. Obstetrics.	
JAY BERGEN OGDEN. Chemistry.	



CALVIN GATES PAGE. Bacteriology.  
 HENRY JOSEPH PERRY. Bacteriology.  
 EDWARD REYNOLDS. Gynaecology.  
 MARK WYMAN RICHARDSON. Pathology.  
 CHARLES LOCKE SCUDDER. Clinical and Operative Surgery.  
 MYLES STANDISH. Ophthalmology  
 MALCOLM STORER. Gynaecology.  
 FRANK RAYMOND STUBBS. Histology.  
 PAUL THORNDIKE. Genito-Urinary Surgery.  
 JOSEPH DEUTSCH WEIS. Histology.  
 ARTHUR HOWARD WENTWORTH. Diseases of Children.

To be Assistants.  
 June 12, 1899.

CHARLES JAMES WHITE. Dermatology.  
 FRANKLIN WARREN WHITE. Physiological Chemistry.  
 GEORGE SHATTUCK WHITESIDE. Anatomy.  
 HUGH WILLIAMS. Anatomy.  
 FREDERICK ADAMS WOODS. Embryology.  
 ERNEST BOYEN YOUNG. Anatomy.

EDWARD HALL NICHOLS, to investigate the Etiology of Cancer. June 12, 1899.  
 DWIGHT MOSES CLAPP, to be Clinical Lecturer in Operative Dentistry. June 19, 1899.

ARTHUR HENRY STODDARD, to be Clinical Instructor in Mechanical Dentistry. June 19, 1899.

GEORGE HOWARD MONKS, to be Instructor in Surgical Pathology. June 19, 1899.  
 PATRICK WILLIAM MORIARTY, to be Instructor in the Mechanical Treatment of Fractured Jaws and Cleft Palates. June 19, 1899.

EDWARD WYLLYS TAYLOR, to be Instructor in Neurology. June 19, 1899.  
 NATHAN PRINDLE WYLLIE, to be Instructor in Materia Medica and Anaesthesia. June 19, 1899.

HARRY OLIVER BIXBY.  
 ALLEN STANLEY BURNHAM.  
 HAROLD DEWITT CROSS.  
 ARTHUR WARREN ELDRED.  
 GEORGE LINCOLN FORREST.  
 HARRY WEST HALEY.  
 THOMAS BERNARD HAYDEN.  
 FREDERICK EVERETT MEADER.

To be Instructors in Mechanical Dentistry. June 19, 1899.

EDWIN CARTER BLAISDELL.  
 WALDO ELIAS BOARDMAN.  
 FREDERICK BRADLEY.  
 DWIGHT WARD DICKINSON.  
 FORREST GREENWOOD EDDY.  
 GEORGE RUFUS GRAY.  
 ELLIS PROCTOR HOLMES.  
 JOSEPH TOTTEN PAUL.  
 CHARLES ERNEST PERKINS.  
 EZRA FLETCHER TAFT.  
 FRANK TURNER TAYLOR.  
 HENRY LAURISTON UPHAM.  
 WALTER HARRIS WHITE.

To be Instructors in Operative Dentistry. June 19, 1899.

- JOHN DANA DICKINSON, to be Clinical Instructor in Mechanical Dentistry. June 19, 1899.
- JULIUS GEORGE WILLIAM WERNER, to be Clinical Instructor in Operative Dentistry. June 19, 1899.
- ROBERT JOHN McMEEKIN, to be Demonstrator of Operative Dentistry. June 19, 1899.
- PATRICK WILLIAM MORIARTY, to be Demonstrator of Mechanical Dentistry. June 19, 1899.
- ARTHUR HARRIMAN ST. CLAIR CHASE, to be Assistant Demonstrator of Mechanical Dentistry. June 19, 1899.
- EDWARD LINWOOD FARRINGTON, to be Assistant Demonstrator of Operative Dentistry. June 19, 1899.
- HENRY CARLTON SMITH, to be Assistant in Chemistry. June 19, 1899.
- WILLIAM ORISON UNDERWOOD, to be Lecturer on Warranty and Evidence. June 12, 1899.
- LESTER HEARD HOWARD, to be Clinical Lecturer. June 12, 1899.
- ALLEN CLEGHORN. Comparative Physiology.
- FRANK INGERSOLL PROCTOR. Ophthalmology.
- FREDERICK ADAMS WOODS. Comparative His- } To be Instructors.  
tology. } June 12, 1899.
- JAY BERGEN OGDEN, to be Assistant in Chemistry. June 12, 1899.
- JAMES REVERDY STEWART, to be Assistant in Applied Zoölogy. May 29, 1899.
- WINFRED WAITE BRAMAN, to be Assistant in Chemistry. June 27, 1899.
- ELISHA WILSON MORSE, to be Instructor in Natural History. September 26, 1899.

### NUMBER OF ORDINARY DEGREES IN 1899.

Bachelors of Arts of the Class of 1899 . . . . .	443
Bachelors of Arts out of course . . . . .	25
Bachelors of Science . . . . .	46
Bachelors of Science out of course . . . . .	11
Bachelors of Divinity . . . . .	2
Bachelors of Laws . . . . .	109
Bachelors of Laws out of course . . . . .	8
Doctors of Medicine . . . . .	108
Doctors of Medicine out of course . . . . .	1
Doctors of Dental Medicine . . . . .	36
Doctors of Dental Medicine out of course . . . . .	1
Doctors of Veterinary Medicine . . . . .	8
Doctors of Veterinary Medicine out of course . . . . .	1
Masters of Arts . . . . .	118
Masters of Arts out of course . . . . .	6
Masters of Science . . . . .	6
Doctors of Philosophy . . . . .	23
Doctors of Science . . . . .	1
Total . . . . .	953

## RETIRING ALLOWANCES.

The following rules concerning retiring allowances were put in force on and after September 1, 1899: —

1. Any person in the service of the University and sixty years of age, who has held an office of the grade of an assistant-professorship, or of a higher grade, for twenty years, shall be entitled to a retiring allowance of twenty-sixtieths of his last annual salary in activity, and to an additional allowance of one-sixtieth of his last annual salary for each year of service in addition to twenty; but no retiring allowance shall exceed forty-sixtieths of the last annual salary in full activity. In counting years of additional service, years of continuous service as member of a Faculty with the title of tutor, instructor, or lecturer, or as assistant in a scientific establishment on an appointment not annual, may be added, at the discretion of the President and Fellows, to the years of service as assistant professor or in a higher grade.

2. No person under sixty years of age shall be entitled to a retiring allowance; but the President and Fellows may at their discretion pay to any person, who, while in the service of the University, has become incapable of discharging his duties by reason of permanent infirmity of mind or body, or has resigned, before the age of sixty, an allowance not exceeding that which he would be entitled to receive under Rule 1, if he had reached the age of sixty.

3. No person who has been in the service of the University less than twenty years as assistant professor or at a higher grade shall be entitled to a retiring allowance; but in computing the retiring allowance of a person who entered the service of the University, as a professor or at an equal grade, at an unusually advanced age, the President and Fellows may at their discretion add a number of years, not exceeding ten, to his actual years of service; and such a person may be granted a retiring allowance as soon as his total service, including the constructive addition, reaches twenty years.

4. Any professor or officer of like grade entitled to a retiring allowance, who with the consent of the President and Fellows shall give up a part of his work and a corresponding part of his salary, shall have a right, upon his partial retirement, to a retiring allowance computed under Rule 1 upon that part of his full salary which he relinquishes; and upon his complete retirement his allowance shall be computed on his last full annual salary, and his years of partial retirement shall count as years of service.

5. The President and Fellows may, in the exercise of their discretion, retire wholly or in part any professor or officer of like grade, who has reached the age of sixty-six, upon the retiring allowance to which he is entitled.

6. In the preceding sections, years of leave of absence are to be counted as years of active service; librarians, assistant librarians, curators, assistants in the scientific establishments, and administrative officers of long tenure whose salaries may be classed with those of professors or assistant professors are covered by the phrases "at an equal grade" or "of like grade"; and the "last annual salary in full activity" means the last regular salary as professor, excluding annual grants and extra payments.

7. The President and Fellows retain power to alter these rules, without, however, abridging the rights which individuals in the service of the University shall have acquired under them.

8. The obligation of the President and Fellows to pay retiring allowances will be neither greater nor less than their obligation to pay salaries; so that, if misfortune shall compel a percentage reduction of salaries, retiring allowances will be reduced in the same proportion.

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#### SCHEME FOR CARRYING ON THE RANDALL DINING HALL.

1. All persons connected with the University who board at Randall Hall shall constitute an Association.

2. The officers of the Association shall be a President, a Vice-President, a Secretary, and Treasurer, an Auditor and a Board of Directors, consisting of President, Vice-President, Secretary and Treasurer and Auditor *ex officio* and eleven others. Of the fourteen Directors, exclusive of the Auditor, five shall be chosen from the Graduate Departments, provided however, that not more than three shall be chosen from any one Department; and nine from the College and the Scientific School, provided however, that not more than four shall be chosen from any one Class of both these Departments taken together. Four of the eleven Directors are required to be chosen from the members of the Retiring Board.

3. All officers, exclusive of the Auditor, shall be chosen by the Association at large. The officers shall serve for one year from Commencement Day following their election. Vacancies in the Board of Directors shall be filled by the Directors by ballot.

4. A regular meeting of the Association shall be held each year, on the first Wednesday in May. At this meeting nominations shall be made for officers of the Association for the next academic year. The election of officers shall be held during the week following the annual meeting, by means of printed ballots containing the names of candidates nominated at the said meeting.

5. The Board of Directors shall have general control and management of the business of the Association, subject only to the restrictions laid down in this scheme. They shall regulate the bill of fare, making due provision



each year for repairs, improvements and maintenance of stock in that year; they shall establish rules for preserving order and have the power of enforcing the same; they shall have the right to suspend or expel members from the privileges of the Association whenever, in their judgment, the welfare of the Association demands it. They shall hold at least one regular meeting in each calendar month of the academic year, and such other meetings as the President may call.

6. The following rules are to be observed:—

- (1) No wine, beer, or other alcoholic drink, and no tobacco shall be used in the Hall.
- (1) No alcohol, naphtha, benzine, kerosine, or other inflammable liquid shall be used or kept within the building.
- (3) No change in the disposition of pictures, busts or other decorations that may be placed in the Hall, or in the architectural features of the Hall itself, or in the apparatus for heating or lighting, shall be made without the previous consent of the Corporation.

7. The Association shall keep the furniture and equipment good, shall pay five per cent. a year upon the advances made by the Corporation to furnish the building, and \$600 a year toward extinguishing that debt.

8. The Corporation will appoint an Auditor, who must be a student in a Graduate Department of Harvard University, or an officer or an assistant of the University, belonging to the Association. A list of eligible candidates will be furnished the Corporation by the Board of Directors. The Auditor shall audit all bills and accounts against the Association, and shall countersign the same, but only, after their being approved by the President, or by special order of the Board of Directors.

He shall make to the Directors a monthly report of the receipts and expenditures of the Association. He shall audit the Treasurer's accounts, which he shall cause to be balanced three times yearly, in December, March and June. At such times as the Bursar may require he shall submit to the Bursar the board accounts of the members of the Association. He shall also keep a record of all moneys deposited with the Bursar by members of the Association as security for board, and shall notify such members when their security is insufficient. His salary shall be fixed by vote of the Association.

The Corporation will appoint a Steward, who shall make all purchases of provisions for the Association, shall order all urgent repairs, shall employ and direct all employees other than students, and shall have general care of the Hall. The salary of the Steward shall be fixed by the Board of Directors. He shall account to the Auditor for all sums which may in any way come into his hands as Steward of the Hall.

The Auditor and the Steward may be dismissed on reasonable notice by the Corporation and shall be dismissed by them on reasonable notice at the request of two thirds of the Directors of the Association.

9. The Corporation will advance from week to week the money to pay the bills of the Association for heating, lighting, service, provisions, etc.; but all such bills shall be approved by the Auditor. The interest on these advances shall be at the rate of five per cent. a year. The whole cost of carrying on the Hall, including the above mentioned charges for advances, shall be covered by the board accounts of the members thereof, and the amounts thus due from the several members shall be certified by the Auditor, and collected upon the term bills by the Bursar.

10. The Corporation reserve to themselves the power of making alterations in this Scheme upon notice to the President and Directors of at least one month.

### RANDALL HALL BILLS OF FARE.

#### HOURS FOR MEALS.

Breakfast, 7.30 to 9; Lunch, 12 to 1.30; Dinner, 5.15 to 6.30.

Sunday: Breakfast, 8.15 to 9.30; Lunch, 12.30 to 1.30; Dinner, 5.30 to 6.30.

#### PRICES AT ANY MEAL.

	Cents.		Cents.
Cereal Coffee . . . . .	3	Gingerbread (1 piece) . . . . .	1
Tea . . . . .	3	Cookies (2) . . . . .	1
Coffee . . . . .	3	Grape Nuts . . . . .	4
Cocoa . . . . .	3		
Hot Milk per Bowl . . . . .	5		
“ “ per Cup . . . . .	2		
Glass of Milk . . . . .	2		
Bowl of Milk . . . . .	4		
Butter . . . . .	1		
Pickles . . . . .	1		
White Bread (2 slices) . . . . .	1		
Graham Bread (2 slices) . . . . .	1		
Corn Bread (1 piece) . . . . .	1		
Graham Gems (each) . . . . .	1		
Crackers (plate) . . . . .	1		
Oyster Crackers . . . . .	2		

#### PIES.

Apricot . . . . .	5
Lemon . . . . .	5
Apple . . . . .	5
Cranberry . . . . .	5
Mince . . . . .	5

#### FRUIT.

Oranges (each) . . . . .	3
Apples “ . . . . .	2
Bananas “ . . . . .	2

#### PRICES AT BREAKFAST AND LUNCH.

Oatmeal and Milk . . . . .	5	Eggs (2) Fried . . . . .	8
“ with Cream . . . . .	6	Eggs (2) Boiled . . . . .	8
Wheat and Milk . . . . .	5	Eggs (2) Dropped . . . . .	8
“ with Cream . . . . .	6	Eggs (2) on Toast . . . . .	10
Hominy and Milk . . . . .	5	Egg Omelette . . . . .	10
“ with Cream . . . . .	6	Eggs, Scrambled . . . . .	10
Rice and Milk . . . . .	5	Dry Toast (2 slices) . . . . .	2
“ with Cream . . . . .	6	Buttered Toast (2 slices) . . . . .	3
Baked Beans . . . . .	4		

#### BREAKFAST, NOVEMBER 9.

Beefsteak . . . . .	10	Baked Potatoes . . . . .	2
Fried Ham . . . . .	10	Apricot Preserve . . . . .	4
Broiled Spring Chicken (half) . . . . .	25	Stewed Prunes . . . . .	4
Griddle Cakes and Maple Syrup . . . . .	7	Malaga Grapes . . . . .	5
Roast Beef Hash . . . . .	7	Hot Biscuit . . . . .	1

COMBINATION BREAKFAST, 14 CENTS.

Bananas.  
Hominy and Milk.  
Fried Ham.

Sauté Potatoes.  
Biscuit, Corn Bread, and Butter.  
Tea, Coffee, or Milk.

LUNCH, JANUARY 3.

	Cents.
Beef Soup . . . . .	4
Irish Stew and Dumpling . . . . .	10
Curry of Lamb with Rice . . . . .	10
Broiled Salmon Steak, Tartare Sauce . . . . .	20
Broiled Live Lobster . . . . .	50
Apple Fritters, Madeira Sauce . . . . .	7
Cream Toast . . . . .	7

	Cents.
Cold Pressed Corned Beef . . . . .	8
Cold Pickled Lambs' Tongues . . . . .	10
Baked or Hashed Brown Potatoes . . . . .	2
Cabinet Pudding . . . . .	5
Quince Preserve . . . . .	4
Cranberry Sauce . . . . .	4
Malaga Grapes . . . . .	5

COMBINATION LUNCH, 14 CENTS.

Beef Soup.  
Irish Stew and Dumpling.  
Baked Potatoes.  
Apple Sauce.

Bread and Butter.  
Cabinet Pudding.  
Tea, Coffee, or Milk.

DINNER, NOVEMBER 9.

English Beef Soup . . . . .	4
Roast Beef . . . . .	10
Roast Lamb, Mint or Brown Sauce . . . . .	10
Squash . . . . .	3
Lima Beans . . . . .	3
Mashed or Sweet Potatoes . . . . .	2
Baked Rice Pudding . . . . .	5

Chocolate Cream Pie . . . . .	5
Fruit Cake . . . . .	1
Strawberry Preserve . . . . .	4
Apple Sauce . . . . .	4
Malaga Grapes . . . . .	5
Grape Nuts . . . . .	4
Hot Rolls . . . . .	1

COMBINATION DINNER, 16 CENTS.

English Beef Soup.  
Roast Lamb, Mint or Brown Sauce.  
Squash.  
Sweet Potatoes.

Baked Rice Pudding.  
Bread and Butter.  
Jelly Roll.  
Tea, Coffee, or Milk.

PRICES OF ARTICLES WHEN NOT ON REGULAR BILL OF FARE.

OYSTERS.

Providence River, per doz. . . . .	15
Fried in Crumbs . . . . .	25
Broiled . . . . .	25
Fancy Roast . . . . .	25
Stewed . . . . .	15
Fried Scallops . . . . .	15

FISH.

Fried Cod. . . . .	12
Broiled Cod . . . . .	15
Fried Halibut . . . . .	15
Broiled Halibut . . . . .	18

STEAKS, CHOPS, ETC.

Rump Steak . . . . .	20
Rump Steak, with Mushrooms . . . . .	35

Sirloin Steak . . . . .	45
Sirloin Steak, with Mushrooms . . . . .	60
Tenderloin Steak . . . . .	50
Tenderloin Steak, with Mushrooms . . . . .	65
Lamb Chops . . . . .	20
Mutton Chops . . . . .	20
Mutton Chops, Breaded . . . . .	25
Mutton Chops, Tomato Sauce . . . . .	25
Mutton Chops, with French Peas . . . . .	35
Mutton Chops, with Mushrooms . . . . .	35
Pork Chops . . . . .	15
Broiled Ham . . . . .	15
Broiled Ham, with Eggs . . . . .	20
Bacon . . . . .	12
Bacon, with Eggs . . . . .	20
Fried Sausages . . . . .	10
Hamburger Steak, Tomato Sauce . . . . .	20
Hamburger Steak, Mushrooms . . . . .	30

	Cents.		Cents.
<b>VEGETABLES.</b>		<b>Heinz's Pickled Onions . . . . .</b>	
Griddled Potatoes . . . . .	10	"    Chili Sauce . . . . .	5
French Fried Potatoes . . . . .	5	"    Sweet Pickles . . . . .	5
Lyonnaise Potatoes . . . . .	5	Olives . . . . .	2
Stewed Potatoes . . . . .	5		
Fried Sweet Potatoes . . . . .	5	<b>CHEESE.</b>	
French Peas . . . . .	15	American . . . . .	1
Stewed Mushrooms . . . . .	15	Gruyère . . . . .	5
Stewed Tomatoes . . . . .	5	Neufchâtel . . . . .	5
Green Peas . . . . .	5	Edam . . . . .	5
		Brie . . . . .	5
<b>EGGS, ETC.</b>		Roquefort . . . . .	10
Fried (2) . . . . .	10		
Boiled (2) . . . . .	10	<b>PRESERVES.</b>	
Dropped (2) . . . . .	10	Strawberry . . . . .	5
Dropped on Toast (2) . . . . .	12	Raspberry . . . . .	5
Scrambled . . . . .	12	Quince . . . . .	5
Plain Omelette . . . . .	12	Pineapple . . . . .	5
Omelette, with Cheese . . . . .	15	Damson . . . . .	5
Omelette, with Ham . . . . .	15	Apricot . . . . .	5
Omelette, with Jelly . . . . .	15	Guava Jelly . . . . .	10
Omelette, with Parsley . . . . .	15	Apple Sauce . . . . .	5
Milk Toast . . . . .	10	Cranberry Sauce . . . . .	5
Cream Toast . . . . .	12	Stewed Prunes . . . . .	5
Dry Toast . . . . .	4	Maple Syrup . . . . .	5
Buttered Toast . . . . .	5		
Shredded Biscuit (Breakfast only)		<b>ICE CREAM, CAKE, ETC.</b>	
Milk . . . . .	6	Chocolate Ice Cream . . . . .	10
Cream . . . . .	7	Vanilla Ice Cream . . . . .	10
		Assorted Cake . . . . .	5
<b>SALADS, RELISHES, ETC.</b>		Macaroons . . . . .	5
Plain Lobster . . . . .	25		
Lobster Salad . . . . .	25	<b>MINERAL WATERS.</b>	
Chicken Salad . . . . .	25	Apollinaris, pints . . . . .	15
Potato Salad . . . . .	10	Poland Spring, pints . . . . .	15
P. and C. Sardines . . . . .	10	Londonderry Lithia, pints . . . . .	15
Heinz's India Relish . . . . .	5	Imported Ginger Ale . . . . .	15
"    Chow-Chow . . . . .	5	American Ginger Ale . . . . .	5

## EXTRACT FROM THE AGREEMENT CONCERNING THE PROFESSORSHIP OF HYGIENE.

JANUARY 30, 1899.

to apply the said fund so soon as the income thereof shall be large enough in the judgment of said Corporation for a permanent foundation for the liberal maintenance in the undergraduate department of said College of a full professorship of hygiene.

The holder of such professorship shall be a regularly educated physician of marked ability and industry and of a temperament likely to enable him to elicit readily the confidence of young men.

His duty shall include an earnest personal interest in the physical welfare of the undergraduates and an intimate personal intercourse with them



so far as this can be had without officiousness on his part, to the end that he may proffer advice in a spirit of friendliness and be easily approached by such of them as desire his counsel.

It shall be the duty of the professor, both by advice and by personal interest to encourage especially open air exercise and sports, and to take a particular care that undergraduates of sedentary and studious habits be made acquainted with the importance of physical recreation.

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#### EXTRACT FROM THE WILL OF CALVIN ELLIS.

All the residue and remainder of the said trust property my trustees in the event aforesaid shall convey in fee simple, transfer, and pay over to the said President and Fellows to hold the same as a permanent fund, and apply the nett rents and income thereof, and of all substituted property; in every year, after first deducting and accumulating in every year Five per centum of such nett income, as an increase of the fund towards paying the Salary of a Professor of Pathological Anatomy. Provided however; that if such professor would receive in any one year, if the whole of the said nett income remaining after such deduction of Five per centum, were paid to him, a salary of more than Five Thousand Dollars for such year, arising from gifts, legacies and other permanent endowments (including the income of this legacy) then, and in every such year, the amount paid him from the income of this legacy shall be reduced so that the total income from such sources shall be Five Thousand Dollars and no more. And if the income from gifts, legacies and other permanent endowments exclusive of the income of this legacy, shall amount, in any year, to Five Thousand Dollars, then, and in every such year, the income from this legacy shall be withheld altogether from such professor. The amount so withheld, whether it be the whole, or a part, of the nett income after deducting Five per centum, shall be applied to the salary of the Professor of Physiology, with the same provisions and limitations as those herein declared touching the Salary of the Professor of Pathological Anatomy; and any amount in every such year, still remaining unapplied shall next be applied to the Salary of the Professor of Anatomy with the same provisions, and limitations as are herein declared touching the Salary of the two professors first named.

And if the whole or any part of such income still remain unexpended, in any year, the same shall be expended, in such year, for such other purposes, in the Medical Department of the said College, as the said President and Fellows shall deem most useful.



TABLE II.

CASES OF ILLNESS FOR THE YEARS 1895-6, 1896-7, 1897-8, AND 1898-9.

Diseases.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total
Colds, etc.: . 1895-6	..	92	110	118	141	172	215	93	62	2	1005
1896-7	..	79	97	117	106	132	193	134	69	4	931
1897-8	..	44	84	69	99	65	132	94	65	3	655
1898-9	..	64	179	215	232	123	133	106	96	5	1153
Scarlet Fever: 1895-6	..	..	1	..	1	..	..	..	..	..	2
1896-7	..	..	..	..	..	1	..	2	1	..	4
1897-8	..	..	..	..	..	1	1	..	..	..	2
1898-9	..	..	..	..	..	..	..	..	..	..	..
Diphtheria: . 1895-6	..	1	..	..	..	1	1	..	..	..	3
1896-7	..	..	..	2	..	..	..	..	..	..	2
1897-8	..	..	1	2	..	..	1	1	..	..	5
1898-9	..	..	..	..	..	..	..	..	..	..	..
Typhoid Fev.: 1895-6	..	3	..	1	1	1	..	1	1	..	8
1896-7	..	6	2	..	1	..	..	..	..	..	9
1897-8	..	3	2	..	1	..	1	..	..	..	7
1898-9	..	2	1	1	..	..	..	..	1	..	5
Measles: . . . 1895-6	..	..	..	1	1	4	5	6	1	3	21
1896-7	..	2	2	1	4	11	5	6	15	1	47
1897-8	..	..	1	..	8	4	1	4	1	..	19
1898-9	..	..	..	..	1	4	12	18	12	1	48
Mumps: . . . 1895-6	..	..	..	..	..	4	5	8	3	..	20
1896-7	..	..	..	1	..	1	1	1	4	3	11
1897-8	..	..	..	4	2	4	50	34	1	..	95
1898-9	..	..	..	..	1	..	..	..	1	..	2
Headache: . . 1895-6	..	8	14	20	15	15	17	13	15	..	117
1896-7	..	5	17	8	16	12	15	5	10	..	88
1897-8	..	3	10	9	6	4	8	7	4	..	51
1898-9	..	2	9	10	9	8	27	17	42	2	126
Overwork: . . 1895-6	..	4	5	..	..	6	4	7	1	1	28
1896-7	..	2	2	1	2	4	4	3	1	..	19
1897-8	..	1	4	3	1	3	4	1	..	1	18
1898-9	..	..	1	..	3	..	..	1	..	2	7
Injuries: . . . 1895-6	..	36	20	17	17	16	12	20	18	2	158
1896-7	..	18	25	8	11	13	9	11	7	2	104
1897-8	..	15	15	8	10	8	15	11	18	2	102
1898-9	..	19	17	9	6	7	12	13	9	1	93
"At Home": 1895-6	..	10	11	10	13	15	13	4	..	..	76
1896-7	..	7	9	10	6	8	10	10	4	4	68
1897-8	..	4	3	..	..	11	3	2	4	..	27
1898-9	1	4	8	18	9	7	7	..	..	..	54
Miscellaneous: 1895-6	1	110	165	108	81	135	155	85	79	1	920
1896-7	..	72	108	95	74	52	123	118	83	10	735
1897-8	..	57	79	80	64	57	121	61	68	8	595
1898-8	1	90	122	90	82	82	271	297	171	11	1217
TOTALS: . . . 1894-5	5	203	223	146	297	341	419	284	241	10	2169
1895-6	1	264	326	275	270	369	427	237	180	9	2358
1896-7	..	191	262	243	220	234	360	290	194	24	2018
1897-8	..	127	199	175	191	157	337	215	161	14	1576
1898-9	2	181	337	343	343	231	462	452	332	22	2705





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# TREASURER'S STATEMENT.



1899.





## TREASURER'S STATEMENT.

TO THE BOARD OF OVERSEERS OF HARVARD COLLEGE :—

The Treasurer of the College submits the Annual Statement of the financial affairs of the University, for the year ending July 31, 1899, in the usual form.

The Funds separately invested, with the income thereof, are as follows :—

	UNIVERSITY.	Principal. July 31, 1899.	Income.
<b>George B. Dorr Fund,</b>			
University Houses and Lands, . . . . .		\$115,966.56	\$1,927.12
<b>Francis E. Parker Fund,</b>			
University Houses and Lands, . . . . .		113,817.44	1,891.41
<b>John C. Gray Fund,</b>			
University Houses and Lands, . . . . .		25,000.00	415.46
<b>Joseph Lee Fund,</b>			
University Houses and Lands, . . . . .		10,000.00	166.19
<b>William F. Weld Fund (part),</b>			
University Houses and Lands, . . . . .		57,880.11	184.84
<b>Insurance and Guaranty Fund,</b>			
University Houses and Lands, . . . . .		141,638.74	2,353.75
<b>Stock Account,</b>			
University Houses and Lands, . . . . .		24,971.16	1,216.55
<b>John Cowdin Fund,</b>			
Real Estate, Charlestown St., Boston, . . . . .		22,000.00	2,045.56
<b>Walter Hastings Fund,</b>			
Real Estate, Sacramento St., Cambridge, . . . . .		20,000.00	1,081.96

### COLLEGE.

<b>Stoughton Scholarship (part),</b>			
Real Estate in Dorchester, . . . . .		1,294.30	175.00
<b>Pennoyer Scholarships (part),</b>			
Pennoyer Annuity in England, . . . . .		4,444.44	52.86
<b>Jonathan Phillips' Gift,</b>			
\$10,000 City of Boston 3½'s, . . . . .		10,000.00	350.00
<b>Samuel Ward's Gift,</b>			
Ward's (Bumkin) Island, Boston Harbor, . . . . .		1,200.00	25.00
<b>Scholarships of the Class of 1856,</b>			
\$10,000 Frem., Elkhorn & Mo. Valley R.R. 6's, . . . . .		10,000.00	600.00
<b>Professorship of Hygiene,</b>			
Policy of Mass. Hospital Life Insurance Co., . . . . .		5,000.00	200.00

Amounts carried forward, . . . . .	\$563,212.75	\$12,685.70
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Amounts brought forward, . . . . .		\$563,212.75	\$12,685.70
And the following securities which were sold during the year:—			
\$2,000	City of Springfield 3½'s, . . . . .		27.42
2,000	" " Somerville 4½'s, . . . . .		42.75
2,000	" " Somerville 4's, . . . . .		32.22
4,000	" " Jersey City 5's, . . . . .		74.71
2,000	" " St. Louis 6's, . . . . .		60.00
1,000	" " St. Louis 5's, . . . . .		20.14
2,000	" " St. Louis 4's, . . . . .		38.89
2,000	" " Cleveland 3 <sup>65</sup> / <sub>100</sub> 's, . . . . .		53.70
2,000	" " Cleveland 4's, . . . . .		32.22
2,000	" " Columbus 4's, . . . . .		45.55
2,000	" " Cincinnati 5's, . . . . .		56.94
2,000	" " Dayton 5's, . . . . .		56.94
2,000	" " Duluth 5's, . . . . .		56.94
2,000	" " Los Angeles 5's, . . . . .		66.11
2,000	" " Portsmouth, O., 4's, . . . . .		45.56
2,000	" " St. Paul 4½'s, . . . . .		51.00
3,000	" " St. Paul 5's, . . . . .	122.92	
2,000	" " Tacoma 6's, . . . . .		76.00
2,000	" " Minneapolis 4½'s, . . . . .		36.25
2,000	" " Minneapolis 4's, . . . . .		5.55
2,000	" " Omaha 6's, . . . . .		78.33
2,000	" " Marlborough 4's, . . . . .		32.22
2,000	" " Detroit 6's, . . . . .		58.33
2,000	" " Holyoke 4's, . . . . .		38.89
5,000	Town of Johnston, R. I., 4's, . . . . .	163.89	
2,000	" " Pawtucket 4's, . . . . .		32.22
2,000	County of Ramsey, Ill., 4½'s, . . . . .		36.00
2,000	Washington County, Ill., 6's, . . . . .	108.33	
6,000	American Bell Telephone Co. 4's, . . . . .		95.33
4,000	New England Tel. & Tel. Co. 5's, . . . . .		95.56
3,000	Chicago, Burl. & Quincy R. R. 4's, . . . . .		59.25
2,000	Chicago, Burl. & Quincy R. R. 4's, . . . . .		49.45
4,000	Old Colony R. R. 4's, . . . . .		38.56
3,000	Boston & Albany R. R. 5's, . . . . .		97.92
2,000	Eastern R. R. 6's, . . . . .		88.33
4,000	Fitchburg R. R. 5's, . . . . .	114.45	
2,000	Portland & Ogdens. R. R. 5's, . . . . .		56.94
2,000	Maine Central R. R. 4½'s, . . . . .		58.75
3,000	Atchison, Topeka & Santa Fe R. R. 4's, . . . . .		56.25
2,000	Chicago, Milwaukee & St. Paul R. R. 6's, . . . . .		48.33
2,000	Long Island City Railway 4½'s, . . . . .		39.75
2,000	Lowell, Lawrence & Haverhill Street Railway 5's, . . . . .		75.12
2,000	West End Street Railway 4½'s, . . . . .		66.25
2,000	West End Street Railway 4's, . . . . .		45.55
2,000	Wakefield & Stoneham Street Railway 5's, . . . . .		75.00
Amounts carried forward, . . . . .		\$563,212.75	\$15,396.51

Amounts brought forward, . . . . .	\$563,212.75	\$15,396.51
2,000 Metropolitan Horse Railway 5's, . . . . .		44.73
2,000 Lynn & Boston Street Railway 5's, . . . . .		50.00
2,000 Middlesex Street Railway 5's, . . . . .		40.55
2,000 Naumkeag Street Railway 5's, . . . . .		57.93
2,000 Hecker-Jones-Jewell Milling 6's . . . . .		54.75

## LIBRARY.

<b>Ichabod Tucker Fund</b> (part),		
Policy of Mass. Hospital Life Insurance Co., . . . . .	5,000.00	200.00

## LAW SCHOOL.

<b>James Barr Ames Prize Fund</b> (part),		
Personal Note, . . . . .	2,900.00	120.00

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY  
AND ETHNOLOGY.

<b>Peabody Professor Fund,</b>		
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part), . . . . .	19,218.64	1,038.84
<b>Peabody Collection Fund,</b>		
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part), . . . . .	19,218.64	1,038.84
<b>Peabody Building Fund,</b>		
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part), . . . . .	11,512.72	622.32
<b>Thaw Fund</b> (\$8.48 deducted from income for sinking premium),		
\$20,000 Girard Point Storage Co. 1st M. 3½'s, . . . . .	20,347.50	691.52

## SPECIAL FUNDS.

<b>Bussey Trust,</b>		
Real Estate, . . . . .	392,709.18	20,088.98
<b>Robert Troup Paine Fund</b> (accumulating),		
\$43,000 Massachusetts 3½'s (\$168.39 deducted from income for sinking premium), . . . . .	45,453.38	1,301.61
<b>Fund of the Class of 1834,</b>		
Policy of Mass. Hospital Life Insurance Co., . . . . .	1,000.00	40.00
<b>Fund of the Class of 1844,</b>		
Policy of Mass. Hospital Life Insurance Co., . . . . .	6,500.00	260.00
<b>Fund of the Class of 1853,</b>		
Policy of Mass. Hospital Life Insurance Co., . . . . .	3,725.00	149.00
<b>Charles L. Hancock Bequest</b> (part),		
Real Estate in Chelsea, . . . . .	1,000.00	
<b>Henry C. Warren's Bequests</b> (part),		
\$9,000 City of Boston 4's, . . . . .	9,765.00	180.00
200 shares West End Street Railway Co., . . . . .	22,400.00	400.00
64 " Boston Elevated Railway Co. (one half paid), . . . . .	6,976.00	
39 shares First National Bank, . . . . .	8,073.00	156.00
84 " Boston & Albany R. R., . . . . .	21,252.00	

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Amounts carried forward, . . . . . \$1,160,263.81 \$41,931.58

Amounts brought forward, . . . . \$1,160,263.81    \$41,931.58  
 And the following securities, which were sold during the year :—

\$1,000 United States 5's, . . . . .	12.50
5,000 Norwood & Montreal R. R. 5's, . . . .	171.53
5,000 Boston Athletic Association 5's, . . . .	149.31
12,000 City of Fitchburg 4's, . . . . .	273.33
7,000 New England R. R. 5's, . . . . .	140.98
4,000 City of Danville, Ill., 5's, . . . . .	183.89
11,000 City of Los Angeles (sewer) 5's, . . . .	241.40
Deposit in Suffolk Savings Bank, withdrawn, .	15.26
"    Franklin    "    "    "    "	17.80
"    Home    "    "    "    "	17.85
"    Boston Five Cents Savings Bank, withdrawn, . . . . .	18.11

**Calvin Ellis' Bequests (part),**

\$5,000 Kansas & Missouri R. R. 1st M. 5's, . . .	3,500.00
120 shares Old Colony R. R., . . . . .	24,360.00
30 " Boston & Providence R. R., . . . . .	9,000.00
156 " New York, New Haven & Hartford R.R., .	33,696.00
150 " Boston & Albany R. R., . . . . .	38,550.00
50 " Boston & Lowell R. R., . . . . .	12,000.00
91 " Boston & Maine R. R. preferred, . .	15,925.00
40 " Vermont & Massachusetts R. R., . .	6,610.00
200 " Chicago, Burl. & Quincy R. R., . . .	27,400.00
8 " Old Boston National Bank, . . . . .	937.00
17 " Merchants National Bank, . . . . .	2,813.50
15 " Boston Real Estate Trust, . . . . .	20,703.75
20 " Massachusetts Mutual Fire Ins. Co., .	2,000.00

**Price Greenleaf Fund.** (\$485.56 deducted from income for sinking premiums.) The total amount of this Fund is \$719,091.31, which is invested as follows :—

\$43,500 Consolidated R. R. of Vermont 5's, . .	38,280.00	1,740.00
12,200 Rutland R. R. 6's, . . . . .	12,769.33	569.33
37,200 Rutland R. R. 5's (paid during year), .		930.00
46,500 Ogdens. & L. Champ. R. R. 6's, (paid during year), . . . . .		930.00
3,000 Chicago, Burl. & Quincy R. R. 4's, . . .	2,880.00	120.00
3,000 Chicago, Burl. & Northern R. R. 5's, . .	2,950.00	150.00
290 shares Northern R. R. (N. H.), . . . . .	29,290.00	1,740.00
800 " Rutland " preferred, . . . . .	28,000.00	1,600.00
317 " Boston & Maine R. R., . . . . .	48,746.21	1,902.00
360 " Boston & Lowell " . . . . .	46,800.00	2,880.00
237 " Fitchburg R. R., preferred, . . . . .	22,306.27	948.00
355 " Old Colony " . . . . .	63,190.00	2,485.00
147 " Chicago, Burl. & Quincy R. R., . .	18,818.20	852.00
20 " N. Y. Central & Hudson River R. R., .	2,260.00	80.00
52 " West End Street Railway, preferred, .	4,305.56	208.00
\$34,000 New York Central & Hudson River R. R. (Michigan Central Collateral) 3½'s, .	28,412.10	1,190.00

Amounts carried forward, . . . . \$1,706,766.73    \$61,497.87



Amounts brought forward, . . . . .	\$1,706,766.73	\$61,497.87
50,000 Union Pacific R. R. 1st M. & L. G. 4's, .	44,625.00	2,000.00
2,000 Chicago, Burl. & Quincy R. R. 3½'s, . .	2,000.00	
27,000 Burl. & Mo. R. R. in Neb. non ex. 6's, .	29,261.25	418.50
50,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, .	49,750.00	2,500.00
25,000 New England " " " 6's, . . . .	25,519.53	1,425.78
50,000 Chic. Junc. R'ys & Union Stock Yards 5's, .	47,000.00	2,500.00
70,000 Broadway Realty Co. Purchase money		
1st M. 5's, . . . . .	75,065.78	3,315.78
70,000 American Bell Telephone Co. 4's, . . .	71,160.55	2,521.66
Cash in New England Trust Co., . . . . .	25,215.97	301.23
" Suffolk National Bank, . . . . .	485.56	
Totals, . . . . .	\$2,076,850.37	\$76,480.82

The other Funds are invested as a whole. The general investments are stated in detail on pages 38 and 39 of this report. The usual summary of them, and of their income, is as follows :—

Investments.	Principal, Aug. 1, 1898.	Principal, July 31, 1899.	Income.
Notes, Mortgages, &c., . . . . .	\$463,500.00	\$813,500.00	\$23,036.64
United States Bonds, . . . . .	1,173,767.50	826,476.96	33,584.46
Railroad Bonds, . . . . .	2,298,356.62	2,867,132.70	110,342.89
Railroad Stocks, . . . . .	249,687.50	354,071.80	14,000.00
Sundry Bonds, . . . . .	1,061,467.50	1,299,712.31	52,003.20
Manufacturing Stocks, . . . . .	37,322.29	37,322.29	3,980.00
Building Trusts' Stocks, . . . . .		170,000.00	
Real Estate, . . . . .	2,692,953.30	2,501,752.65	139,502.43
Brattle Street Reversion (1918), . .	1,000.00	1,015.00	
Advances to Bussey Trust, . . . .	54,835.51	29,835.51	1,700.27
" " Sch. of Veterinary Med., . . .	24,406.01	24,406.01	1,220.30
" " Observatory, . . . . .		182.28	
" " Peabody Museum of Am. Archaeology and Ethnology, . . . . .		523.20	
" " Botanic Department, . . . .	12,811.27	13,289.18	640.56
" " Gray Herbarium, . . . . .		1,081.18	
" " University Lands, . . . . .	30,000.00	30,000.00	1,500.00
" " Dining Hall Association, . . .	12,232.16	15,501.50	999.84
" " Sundry Accounts, . . . . .	464.88	2,431.85	
Baring Brothers & Company, . . . .	2,153.07	2,274.31	68.38
Term Bills due in October, . . . . .	216,669.04	206,441.71	
Term Bills overdue, . . . . .	6,971.05	8,554.31	
Cash in Suffolk National Bank, . . .	10,027.59	11,427.35	
Cash in National Union Bank, . . . .	50,134.57	453,820.35	3,806.69
Cash in hands of Bursar, . . . . .	26,601.19	19,855.74	
Totals of general investments, . . .	\$8,425,361.05	\$9,690,608.19	\$386,385.66
Totals of special investments, . . .	1,805,599.07	2,076,850.37	76,480.82
Amounts, . . . . .	\$10,230,960.12	\$11,767,458.56	\$462,866.48

The account of Advances for Railroad Bond Premiums has been closed during the year, and the premiums included therein have been charged to the accounts of the securities to which they belonged. In pursuance and in extension of the practice, which has been followed for many years in the case of railroad bonds only, the sums of \$30,601.60 and \$662.43 have been deducted from the income of all bonds bought at a premium and held respectively as general and special investments, and have been applied, as the fair yearly repayment from income, towards sinking the whole of these premiums at the maturity of the bonds.

The net income of the general investments has been divided at the rate of  $4\frac{5.9}{100}$  per cent. among the Funds to which they belong, after allowing to certain temporary Funds and balances a special rate of two per cent. The fraction, which was \$580.69, has been placed as usual to the credit of the University account.

The rate of income compared with that for 1897-98, shows an increase of twenty-two one hundredths of one per cent.

The following table shows the income available for the departments dependent upon the College proper, and the expenditures in those departments; the income and the expenditure for the Lawrence Scientific School and the College being, as during the previous year, combined in the College account:—

Interest on Funds for

University Salaries and Expenses, . . . . .	\$60,064.41		
Library Salaries and Expenses (not books), . . .	23,370.63		
College Salaries and Expenses, . . . . .	51,700.24		
Gymnasium, and repairs on College buildings, . .	none.		
College Term Bills, . . . . .	442,760.12		
Sundry receipts, as follows:—			
Gifts for Salaries and Expenses, . . . . .	\$2,855.00		
Use of buildings (not University Houses			
and Lands), . . . . .	1,930.01		
Laboratory and other fees, &c., . . . . .	42,069.43		
Sales of catalogues, pamphlets, &c., . . . . .	3,169.76		
Repayment of advances, . . . . .	6.00	50,030.20	\$627,925.60
Amount carried forward, . . . . .			\$627,925.60

Amount brought forward, . . . . .		\$627,925.60
Expended for		
University Salaries and Expenses, . . . . .	\$80,901.87	
Library Salaries and Expenses (not books), . . . . .	44,694.51	
College Expenses, . . . . .	122,597.63	
College Salaries, for instruction, . . . . .	334,245.68	
Gymnasium Expenses, . . . . .	12,780.31	
Repairs, insurance and cleaning on College buildings not valued in Treasurer's books, . . . . .	74,533.54	
Deficit in the School of Veterinary Medicine for 1898-99, assumed by the University, . . . . .	3,521.01	\$673,274.55
Balance, showing the deficit for the year, which has been charged to Stock Account, . . . . .		\$45,348.95

The University, College, Lawrence Scientific School, and Library accounts, taken together, show a deficit of \$41,827.94, which is \$329.23 less than the charges against the income of these accounts for putting bath rooms in all the dormitories in the College Yard, and in College House; for improving the heating and ventilation of Harvard and Massachusetts Halls and Appleton Chapel, and the ventilation of Gore Hall. The year's deficit of the Veterinary School amounting to \$3,521.01 has also been taken from the unrestricted income of the University. For all these purposes it has been necessary to use all the income of the Stock Account, and to take from the capital of that account the sum of \$45,348.95. In 1897-98 there was a like deficit of \$3,846.32.

The Divinity School, with an income increased by the fees of the Summer School, and by a gift from the Society for Promoting Theological Education, and with decreased expenditure, has a surplus of \$214.19. In 1897-98 there was a deficit of \$4,191.51.

The Law School has a surplus of \$27,194.11. In 1897-98 the surplus was \$29,624.34.

The Medical School has a deficit of \$18,275.06, caused chiefly by appropriations to the amount of \$17,000 for apparatus and supplies necessary for putting into effect the new system of teaching. In 1897-98 the deficit was \$1,737.66.

The Dental School, with largely increased income from tuition fees, has a surplus of \$5,797.62. In 1897-98 the surplus was \$4,900.64.

The Museum of Comparative Zoölogy used the income of its unrestricted Funds as required by the conditions of gift. It has

a surplus of unrestricted income of \$8,553.68. In 1897-98 the surplus was \$1,044.20.

The General Account of the Observatory shows a deficit of \$1,373.84. In 1897-98 the deficit was \$269.82. The income of the Boyden Fund has been used for work in Peru, and the usual large gifts from Mrs. Draper have been used for the special research work of the Draper Memorial.

The Bussey Institution has a surplus of \$2,432.31. In 1897-98 there was a deficit of \$738.04.

The Veterinary School, with a falling off of receipts from instruction, and from the Hospital and Forge, has a deficit of \$3,521.01. In 1897-98 the deficit was \$1,728.31.

The Peabody Museum has a deficit of \$1,252.66. In addition to using the accumulated income of its funds it has been necessary to advance from the General Investments the sum of \$523.20 to meet this deficit.

*Gifts have been received during the year as follows:—*

GIFTS TO FORM NEW FUNDS OR INCREASE OLD ONES.

From the estate of Miss Elizabeth R. Swift, \$1,000, part of her bequest of \$3,000 for establishing the Swift Scholarship in Harvard College.

From Mrs. Jessie Taylor Philips, in recognition of the wishes of her mother, the late Mrs. Jessie Taylor, \$10,000, in memory of her brothers, John Thomson Taylor and Kenneth Matheson Taylor; \$5,000 thereof for establishing the John Thomson Taylor Scholarship in the Medical School, and \$5,000 for establishing the Kenneth Matheson Taylor Fund for the purchase of books for the College Library, "to increase its efficiency in so far as may be possible in the department of English Literature."

From the estate of Mrs. Mary Ann P. Weld, \$8,000, part of her bequest of \$10,000 for establishing the Christopher M. Weld Scholarship.

From the estate of Edward Austin, \$425,000, the amount of his bequest of \$500,000, the income to be paid to "needy, meritorious students, and teachers to assist them in payment of their studies," after deducting the United States legacy tax of \$75,000; and \$8,500, the amount of his bequest of \$10,000



for the Bacteriological Laboratory in the Medical School, after deducting the United States legacy tax of \$1,500.

From an anonymous giver, cash and securities amounting to \$155,668.67, for establishing the Professorship of Hygiene in the Undergraduate Department of Harvard College.

From the estate of Mrs. Caroline Croft, \$92,025, the amount of her bequest of \$100,000, for prosecuting researches for the cure of cancer and other similar diseases, after deducting the amount of legacy taxes thereon paid in England.

From the estate of Henry L. Pierce, \$30,000 additional, on account of his unrestricted residuary bequest.

From T. Jefferson Coolidge, \$5,000, to establish a fund for prizes for debating.

From the estate of Alexander W. Thayer, \$6,000, part of his bequest of \$30,000 "for assisting worthy and needy young men at the said Harvard University in their efforts to obtain an education."

From William W. Goodwin, \$1,000, for the additional endowment of the Charles Haven Goodwin Scholarship.

From the estate of John Lowell, \$10,000, for the endowment of the George Emerson Lowell Scholarships.

From Julian W. Mack, \$3,000, to establish a fund to be known as The James Barr Ames Fund "from the income of which a prize of not less than four hundred dollars shall be from time to time awarded for a meritorious essay or book on some legal subject."

From the estate of Jacob Wendell, \$5,000, his bequest for a fund, the income of which shall be distributed annually "to such student or students as the College authorities shall deem proper, who shall most excel in their studies, in the same way as rewards and prizes are now given by said College, to students in indigent circumstances."

From the estate of Andrew Bigelow, \$4,950, his unrestricted bequest of \$5,000, after deducting expenses of administration.

From the estate of Mrs. Susan B. Lyman, \$3,000, part of her bequest of \$5,000 for establishing a fund the income of which is "to be distributed under the direction of the President of the College for the benefit of poor but intelligent and meritorious students of the College."

## For the Asa Gray Memorial Fund, from

		Amount brought forward . . \$11,856	
Edward D. Adams . . . . .	\$100	Mrs. Henry P. Kidder . . . .	50
Anonymous . . . . .	25	Mrs. D. P. Kimball . . . . .	250
" . . . . .	2,000	Miss Hannah H. Kimball . . .	100
" . . . . .	100	Elliot C. Lee . . . . .	1,000
" . . . . .	100	Mrs. Henry Lee . . . . .	100
" . . . . .	100	William Caleb Loring . . . .	1,000
" . . . . .	50	Mrs. William Caleb Loring . .	1,000
" . . . . .	50	Miss Katherine P. Loring . . .	50
" . . . . .	1	Miss Louisa P. Loring . . . .	50
" (E. A. W.) . . . . .	250	Augustus Lowell . . . . .	1,000
" . . . . .	100	Alexander McKenzie . . . . .	10
" . . . . .	200	Haslett McKim . . . . .	200
" . . . . .	20	Warren H. Manning . . . . .	5
E. F. Atkins . . . . .	100	Miss Ellen F. Mason . . . . .	250
James M. Barnard . . . . .	5	Thomas Meehan . . . . .	10
Mrs. Alice M. T. Beach . . .	25	Miss Susan Minns . . . . .	500
W. S. Bigelow . . . . .	1,000	Nathaniel C. Nash . . . . .	250
William Brewster . . . . .	25	Grenville H. Norcross . . . .	50
Addison Brown . . . . .	25	Charles W. Parker . . . . .	20
Mrs. B. P. Cheney, Sr. . . .	1,000	Francis H. Peabody . . . . .	500
Mrs. Eliot C. Clarke . . . .	25	Wallace L. Pierce . . . . .	100
T. Jefferson Coolidge, Jr. . .	150	Mrs. Warren B. Potter . . . .	10,000
Mrs. Margaret K. Cummings	100	Mr. and Mrs. George Putnam	250
Walter Deane . . . . .	25	Miss G. L. Putnam . . . . .	25
Miss Julia Delano . . . . .	20	William L. Richardson . . . .	200
E. S. Dixwell . . . . .	500	Mrs. W. B. Rogers . . . . .	50
William Endicott, Jr. . . . .	250	Mrs. G. Howland Shaw . . . .	150
W. E. C. Eustis . . . . .	200	Charles E. Smith . . . . .	100
Miss Elizabeth S. Fiske . . .	100	Charles F. Sprague . . . . .	250
Mrs. Joseph N. Fiske . . . .	100	The Misses A. & E. J. Stone	500
Mrs. W. H. Forbes . . . . .	50	Mrs. Joshua A. Swan . . . . .	100
Jonathan French . . . . .	100	Robert N. Toppan . . . . .	25
A friend . . . . .	500	Miss Abby W. Turner . . . .	25
" . . . . .	10	B. Vaughan . . . . .	100
" . . . . .	1,000	Miss R. P. Wainwright . . . .	10
George A. Gardner . . . . .	500	Miss Mary L. Ware . . . . .	100
Francis C. Gray . . . . .	50	Miss Cornelia Warren . . . .	100
George W. Hammond . . . . .	100	Mrs. S. D. Warren . . . . .	100
Augustus Hemenway . . . . .	100	A. G. Weeks . . . . .	250
F. L. Higginson . . . . .	1,000	J. C. White . . . . .	50
Amor L. Hollingsworth . . . .	200	George Wigglesworth . . . . .	50
E. W. Hooper . . . . .	200	J. Franklin Wight . . . . .	20
H. H. Hunnewell . . . . .	1,000	John D. Williams . . . . .	100
Charles Loring Jackson . . . .	200	Roger Wolcott . . . . .	25
Mrs. P. T. Jackson . . . . .	100	Miss Sarah Yerxa . . . . .	5

Amount carried forward . . \$11,856

\$30,936

From Mrs. Charles Wheeler, \$5,000, "towards the fund for helping poor students," as a memorial to her son, Stuart Wadsworth Wheeler.

From Mrs. Arthur Blake, \$1,000, to be added to the Surgical Laboratory Fund.

For the School of Comparative Medicine, from

Albert C. Burrage . . . . .	\$1,000
F. Gordon Dexter . . . . .	1,000
	<u>\$2,000</u>

From the estate of Henry C. Warren, all his real estate in Cambridge, consisting of about 58,500 square feet of land, with house and stable thereon, at the corner of Harvard and Quincy Streets, also cash and securities amounting to \$143,901.77, of which \$15,000 is to be applied to the endowment of the Harvard Oriental Series; \$10,000 to the endowment of the Dental School; \$10,000 to the use of the Peabody Museum of American Archaeology and Ethnology, for carrying on explorations, principal and interest to be used at the discretion of the Corporation; and the remainder, \$108,901.77, for the benefit of the Indo-Iranian or Sanskrit Department, principal and interest to be used at the discretion of the Corporation.

For the Arnold Arboretum Fund, from

	Amount brought forward .	\$9,500
Francis Bartlett . . . . .	\$2,500	Zenas Crane . . . . . 1,000
P. C. Brooks . . . . .	1,000	Mrs. John M. Forbes . . . . 2,000
Shepherd Brooks . . . . .	1,000	John E. Thayer . . . . . <u>1,000</u>
T. Jefferson Coolidge, Jr. . .	<u>5,000</u>	<u>\$13,500</u>
Amount carried forward . .	<u>\$9,500</u>	

From an anonymous giver, \$100,000, for the endowment of an Architecture Building, which is to be built with money to be provided by the same giver.

From the Class of 1851, its Class Fund amounting to \$507.80, which is to be allowed to accumulate to \$1,000, the income thereafter to be devoted to the use of the Library.

From an anonymous giver, \$500, which is to be allowed to accumulate to \$1,000 and then is to be merged in the Fund of the Class of 1851.

From members of the Class of 1868, as a permanent memorial of the thirtieth year since the graduation of the class,

\$3,384.71, to be "applied in aid of a free bed, to be designated by the name of the class, in the new Harvard Infirmary."

Through the Massachusetts Horticultural Society, \$12,000, previously held by that society under an indenture executed by Josiah Stickney on February 5, 1869, in accordance with which indenture the amount of the fund was to be paid, on February 1, 1899, to the President and Fellows, the income thereof to be applied, at the discretion of the Corporation, to the support of the Lawrence Scientific School or to certain uses in connection with Botany or Horticulture.

From the estate of Buckminster Brown, \$15,000, part of his bequest of \$40,000 for establishing the John B. and Buckminster Brown Professorship of Orthopedic Surgery, and \$353.12 accumulated income thereon.

From the estate of Calvin Ellis, securities amounting to \$287,233.70; \$45,000 thereof being part of his bequest of \$50,000, the income of which is primarily to be applied towards the payment of certain expenses of such descendants of David Ellis and Buelah Newell formerly of Dedham, and of John Ellis and Hannah Ellis formerly of Walpole, as may be students in Harvard College; the remainder, \$242,233.70, being part of his residuary bequest, the income of which is to be used towards the increase of the salaries of certain professors in the Medical School to \$5,000 a year, and for other purposes in the Medical Department.

*The total amount of these gifts for capital account is \$1,383,460.77, as is also stated on page 30 of this report.*

#### GIFTS FOR IMMEDIATE USE.

From Mrs. C. M. Barnard, \$600, her sixteenth yearly payment for the Warren H. Cudworth Scholarships.

From Edward W. Hooper, \$2,300, to pay for legal expenses incurred in connection with the settlement relating to Mr. Edward Austin's will.

Towards the erection and endowment of "Phillips Brooks House," from

Robert Treat Paine . . . . .	\$5,000
Evert J. Wendell . . . . .	50
	<hr/>
	\$5,050



From Joseph B. Warner, \$150, an unrestricted gift.

From an anonymous giver, \$350, for the Ricardo Fellowship for 1898-99.

From T. Jefferson Coolidge, \$200, for prizes for debating, to be awarded in the spring of 1899.

From William W. Goodwin, \$38.24, to be added to the income of the Charles Haven Goodwin Scholarship Fund.

From the estate of John Lowell, \$200, the fourteenth payment towards the support of two Scholarships to be known as the George Emerson Lowell Scholarships.

For the account of Scholarship and Beneficiary Money Returned, from

W. L. Hoopes . . . . .	\$412.78
Members of the <b>Class of 1862</b> . . . . .	200.00
G. C. Travis . . . . .	500.00
	<u>\$1,112.78</u>

From Julian W. Mack, \$150, towards "The Ames Prize" of \$500, which is to be awarded in 1901 from this gift and from the income of the James Barr Ames Fund, founded by Mr. Mack.

From Elliot C. Lee, \$3,000, for arranging and casing the specimens of fossil plants in the Botanic Museum.

From an anonymous giver, \$2,000, towards the equipment of the laboratories attached to the new greenhouses at the Botanic Garden, for the building of which the sum of \$7,000 was last year given by the same person.

For the Botanic Garden, from

Anonymous . . . . .	\$1,000
Anonymous . . . . .	<u>3,000</u>
	\$4,000

From Edwin F. Atkins, \$2,500, "for the prosecution of the study of the improvement of sugar-cane and other tropical plants;" \$2,000 thereof for a fellowship for 1899-1900, and \$500 for the preparation of an exhaustive card catalogue of works on sugar-cane culture and investigations.

Through Miss Marian C. Jackson, \$1,000, for the salary for 1898-99 of the Instructor in the History and Art of Teaching.

From Miss Sara Hammond Palfrey, \$5, towards the expenses of Appleton Chapel.

From William M. Davis, \$26.27, for geographical models.

From Nathaniel C. Nash, \$250, to be spent by Professor John Williams White in such manner as he shall think will best advance the interests of the Department of Greek.

From an anonymous giver, \$200, for the Department of Political Economy.

From Kuno Francke, \$6.39, for books for the Department of German.

From Morris Loeb and James Loeb, \$100, for "the purchase for the University Library of works printed in America in the Judaeo-German dialect."

For assisting in the publication of the Transactions of the American Mathematical Society, from

Anonymous . . . . .	\$150	Amount brought forward . . .	\$225
Edward W. Hooper . . . . .	25	Percival Lowell . . . . .	25
John E. Hudson . . . . .	25	William L. Putnam . . . . .	25
George V. Leverett . . . . .	25	Nathaniel H. Stone . . . . .	25
Amount carried forward . . .	\$225		\$300

From Henry C. Warren, \$12, for the Sanskrit Class-Room library.

From Archibald Cary Coolidge, \$41.68, for the purchase of Russian books, and \$500, for the purchase of books in Slavic history, for the College Library.

From J. Randolph Coolidge, \$3,000, for the purchase of books on Turkey and the Eastern Question, for the College Library.

From the Society for Promoting Theological Education, \$2,088.60, for the library of the Divinity School.

From H. Price Collier, \$140, repayment of a scholarship received by him when a student in the Divinity School.

From the Harvard Law School Association, \$600, to pay for lectures on "Changes in the English Law during the nineteenth Century."

From the Department of English, \$100, for the purchase of books for the Child Memorial Library.

For the Surgical Laboratory, from

Francis S. Blake . . . . .	\$100
George Baty Blake . . . . .	100
	\$200

From an anonymous giver, through Assistant Professor Charles Harrington, \$1,000, for the equipment of the Laboratory for Hygiene.

For increasing certain salaries in the Medical School, from

W. S. Bigelow . . . . .	\$100
Charles S. Minot . . . . .	200
James J. Putnam and Moorfield Storey, trustees . . . . .	600
	<u>\$900</u>

For the Bacteriological Laboratory, from

Quincy A. Shaw . . . . .	\$400
John G. Wright . . . . .	500
	<u>\$900</u>

From Theobald Smith, \$25, towards the expenses of the Pathological Department Laboratory.

From Walter G. Chase, \$150, for the increase of the Embryological collection.

From Miss Lucy Ellis, \$2,000, for assistance in the Departments of Physiology and Pathological Bacteriology at the Medical School for the year ending July 31, 1899.

From Henry F. Sears, \$3,500, for the Pathological Department Library.

From Dwight M. Clapp, \$14, to be added to the Dental School Building Fund.

For the Free Clinic for Animals in connection with the School of Veterinary Medicine, from

		Amount brought forward . . .	\$294
C. F. Adams . . . . .	\$20	Miss Julia Lawrence . . . . .	15
R. L. Agassiz . . . . .	10	Mrs. F. C. Manning . . . . .	5
Bryce J. Allan . . . . .	5	Miss Eleanor G. May . . . . .	3
Anonymous . . . . .	2	Grenville H. Norcross . . . . .	10
Miss M. H. Bond . . . . .	5	E. L. Patch Co. . . . .	5
Ingersoll Bowditch . . . . .	25	Mr. and Mrs. Henry Pickering .	25
Mrs. John L. Bremer . . . . .	100	Mrs. W. B. Potter . . . . .	50
Edward M. Brewer . . . . .	10	H. C. Richards . . . . .	10
H. T. Browne . . . . .	10	John H. Storer . . . . .	3
Mrs. Freeman J. Bumstead . . .	5	Louis B. Thacher . . . . .	3
Miss Martha C. Codman . . . . .	25	O. G. Villard . . . . .	25
Charles P. Curtis . . . . .	10	Mrs. H. V. Ware . . . . .	5
William H. Dunbar . . . . .	5	Edward Wheelwright . . . . .	10
J. S. Fay, Jr. . . . .	10	John D. Williams . . . . .	20
Mrs. F. H. Fegan . . . . .	2	Miss L. H. Williams . . . . .	25
N. H. Henchman . . . . .	25	Ralph B. Williams . . . . .	25
David P. Kimball . . . . .	25	Mrs. Roger Wolcott . . . . .	10
Amount carried forward . . .	\$294		<u>\$543</u>

From E. D. Morgan, \$5,000, to establish the Pathological Department of the School of Veterinary Medicine on a permanent footing at the Bussey Institution.

From the Harvard Club of New York, \$20,000, towards building a new boat-house.

From Mrs. Henry Draper, of New York, an additional sum of \$9,999.96, to be expended by the Director of the Observatory in prosecuting the researches in the photography of stella spectra, with which the late Dr. Henry Draper's name is honorably associated.

From Charles H. Abbott, \$25, for the Dental School.

From the Massachusetts Society for Promoting Agriculture, its second annual payment of \$2,500, "to be expended at the Arnold Arboretum by the Director to increase the knowledge of Trees."

For collections for a Germanic Museum, from

		Amount brought forward .	\$755.00
Henry P. Bowditch . . . . .	\$25	Henry W. Putnam . . . . .	100.00
Louis D. Brandeis . . . . .	25	William L. Putnam . . . . .	20.00
Max Cramer . . . . .	5	Barthold Schlesinger . . . . .	500.00
Henry Albert Gehring . . . . .	50	A. Shuman . . . . .	25.00
Henry L. Higginson . . . . .	100	Henry Villard . . . . .	100.00
Clement S. Houghton . . . . .	200	Charles Weil . . . . .	25.00
Elizabeth G. Houghton . . . . .	200	Mrs. Jacob Wirth . . . . .	200.00
Godfrey Morse . . . . .	50		<u>\$1,725.00</u>
Louis Prang . . . . .	100	Interest on deposit . . . . .	3.64
Amount carried forward . . . . .	\$755		<u>\$1,728.64</u>

From James Stillman, \$50,000, towards the cost of the land and a building for a College Infirmary at Cambridge.

For the Construction Fund for the completion of the Arnold Arboretum, from

Miss Mary S. Ames . . . . .	\$5,000
A Friend . . . . .	5,000
E. C. C. and E. C. . . . .	5,000
	<u>\$15,000</u>

For additions to the Semitic collections, from

		Amount brought forward . .	\$2,430
"Anonymous," Boston . . . . .	\$1,000	Mrs. Ole Bull . . . . .	50
George W. Armstrong . . . . .	100	L. G. Burnham . . . . .	50
William A. Bancroft . . . . .	150	"E. S. C." . . . . .	500
James M. Barnard . . . . .	25	Miss Elizabeth E. Dana . . . . .	10
Jonas S. Barnet . . . . .	25	Mrs. R. H. Dana . . . . .	25
Mrs. Edward L. Beard . . . . .	5	Oliver H. Durrell . . . . .	100
Albert Bernard . . . . .	50	Henry Ehrlich . . . . .	50
Nathan Bernstein . . . . .	50	Albert Eisemann . . . . .	50
Mrs. Arthur W. Blake . . . . .	1,000	William Filene & Sons . . . . .	10
Mr. and Mrs. Louis D. Brandeis . . . . .	25	Frederick P. Fish . . . . .	250
Amount carried forward . . . . .	\$2,430	Amount carried forward . . . . .	<u>\$3,525</u>



Amount brought forward .	\$3,525	Amount brought forward .	\$9,235
Mrs. J. N. Fiske . . . . .	150	J. Peavy & Brother . . . . .	100
Mrs. W. S. Fitz . . . . .	1,000	James Phillips, Jr. . . . .	100
Mrs. Francis C. Foster . . .	1,000	Mrs. Henry Pickering . . . .	1,000
Daniel Frank . . . . .	50	Philip Prager . . . . .	50
Thomas B. Gannett . . . . .	100	Benjamin S. Pray . . . . .	10
Miss Julia Goddard . . . . .	100	I. A. and A. C. Ratschesky . .	50
Mrs. B. F. Goodrich . . . .	50	William Read . . . . .	50
Mrs. James Grecnleaf . . . .	100	Coolidge S. Roberts . . . . .	50
Frank O. Hall . . . . .	10	Mrs. D. C. Robinson's Friday	
Mr. and Mrs. Jacob H. Hecht	600	Morning Bible Class . . . .	40
Louis Hecht, Jr. . . . .	50	Miss Marian Russell . . . . .	100
Summit L. Hecht . . . . .	150	"S. R.," Cambridge . . . . .	200
Mrs. Augustus Hemenway . .	500	Stephen Salisbury . . . . .	1,500
Miss Lilian Horsford . . . .	25	Seth Sears . . . . .	10
Miss A. M. Houghton . . . .	25	Semitic Club, Radcliffe College	10
Henry O. Houghton . . . . .	25	A. Shuman . . . . .	100
William A. Hunnewell . . . .	10	A. Shuman & Co. . . . .	100
Phoenix Ingraham . . . . .	10	E. A. and S. E. Shuman . . .	70
Isaac Kaffenburgh . . . . .	100	Alexander Steincrt . . . . .	50
George F. Kendall . . . . .	25	Miss Lucy M. Stone . . . . .	10
A. Koshland . . . . .	100	Miss Sara A. Stone . . . . .	5
Isaac Leman . . . . .	10	Ferdinand Strauss . . . . .	50
Joseph H. Liebmann . . . . .	50	Mrs. Joshua Swan . . . . .	10
Mrs. William C. Loring . . .	500	Charles H. Taylor . . . . .	50
Arthur T. Lyman . . . . .	500	Mrs. W. B. Thomas . . . . .	1,000
Frank P. Merrill . . . . .	10	Mr. and Mrs. Benjamin Vaughan	100
William A. Munroe . . . . .	100	Simon Vorenberg . . . . .	25
Godfrey Morse . . . . .	100	Mrs. S. D. Warren . . . . .	1,000
Jacob R. Morse . . . . .	10	A. A. White . . . . .	25
Mrs. Robert M. Morse . . . .	20	George Wigglesworth . . . . .	1,000
James L. Paine . . . . .	100	Beekman Winthrop . . . . .	25
J. S. Paine . . . . .	50	Roger Wolcott . . . . .	100
Mrs. Charles H. Parker . . . .	30	B. M. Wolff . . . . .	25
The Misses Peabody . . . . .	50	Louis Wormser . . . . .	20
Amount carried forward . .	\$9,235		\$16,270

For the Peabody Museum of American Archaeology and Ethnology, for salaries and expenses, from

Anonymous . . . . .	\$100.00	Amount brought forward .	\$358.34
Mrs. N. E. Baylies . . . . .	25.00	Estate of Mrs. Mary Hemen-	
C. P. Bowditch . . . . .	83.34	way . . . . .	500.00
A. F. Esterbrook . . . . .	50.00	C. B. Moore . . . . .	500.00
A. Hemenway . . . . .	100.00	George A. Nickerson . . . .	184.00
Amount carried forward . .	\$358.34	Stephen Salisbury . . . . .	50.00
			\$1,592.34

*The total amount of these gifts for immediate use is \$161,368.90, as is also stated on page 28 of this report.*

CHARLES F. ADAMS, 2D, *Treasurer.*

Boston, December 1, 1899.

*General Statement of Receipts and Disbursements*  
for the year ending

INCOME.

Interest on notes, mortgages, advances, &c., . . . . .	\$29,293.13	
Interest on Policies Mass. Hospital Life Insurance Co., . . . . .	849.00	
Interest on Bank Deposits.		
Deposit in New England Trust Co., . . . . .	\$312.79	
" " National Union Bank, . . . . .	3,806.69	
" " Suffolk Savings Bank, . . . . .	15.26	
" " Franklin " " . . . . .	17.80	
" " Home " " . . . . .	17.85	
" " Boston Five Cents Savings Bank, . . . . .	18.11	4,188.50
Interest on Public Funds (after deducting \$9,583.93 for sinking premiums).		
United States 5's, . . . . .	\$19,634.00	
" " 4's, . . . . .	13,962.96	
Massachusetts 3½'s, . . . . .	1,301.61	
City of Boston 3½'s, . . . . .	350.00	
" " 4's, . . . . .	180.00	
" Springfield 3½'s, . . . . .	27.42	
" Somerville 4½'s, . . . . .	42.75	
" " 4's, . . . . .	32.22	
" Jersey City 5's, . . . . .	74.71	
" St. Louis 6's, . . . . .	60.00	
" " 5's, . . . . .	20.14	
" " 4's, . . . . .	38.89	
" Cleveland 3- <sup>65</sup> / <sub>100</sub> 's, . . . . .	53.70	
" " 4's, . . . . .	32.22	
" Columbus 4's, . . . . .	45.55	
" Cincinnati 5's, . . . . .	56.94	
" Dayton 5's, . . . . .	56.94	
" Duluth 5's, . . . . .	56.94	
" Los Angeles 5's, . . . . .	66.11	
" " (sewer) 5's, . . . . .	241.40	
" Portsmouth, O. 4's, . . . . .	45.56	
" St. Paul 4½'s, . . . . .	51.00	
" " 5's, . . . . .	122.92	
" Tacoma 6's, . . . . .	76.00	
" Minneapolis 4½'s, . . . . .	36.25	
" " 4's, . . . . .	5.55	
" Omaha 6's, . . . . .	78.33	
" Marlborough 4's, . . . . .	32.22	
" Detroit 6's, . . . . .	58.33	
" Holyoke 4's, . . . . .	38.89	
" Fitchburg 4's, . . . . .	273.33	
" Danville, Ill., 5's, . . . . .	183.89	
Town of Johnston, R. I., 4's, . . . . .	163.89	
" Pawtucket 4's, . . . . .	32.22	
Amounts carried forward, . . . . .		\$37,532.88
		\$34,330.63

*of the Treasurer of Harvard College,  
July 31, 1899.*

## EXPENSES.

Paid to account of Expenses in the

**University**, as per Table I (page 66).

Fellowships and Scholarships, . . . . .	\$15,775.00	
Prizes, . . . . .	290.00	
Salaries, . . . . .	38,336.48	
Sundry payments made from special Funds, .	14,924.70	
Other expenses, . . . . .	39,615.39	
Deficit in the School of Veterinary Medicine for 1898-99, . . . . .	3,521.01	\$112,462.58

**College**, as per Table II (page 71).

Salaries for instruction, . . . . .	\$334,245.68	
Sundry salaries, . . . . .	12,975.00	
Repairs, insurance, and cleaning on College Buildings, not valued in Treasurer's books, .	74,533.54	
General expenses, . . . . .	57,775.41	
Scholarships, . . . . .	37,008.38	
Beneficiaries, . . . . .	17,858.37	
Prizes, . . . . .	1,032.53	
Botanic Garden and Botanic Museum, . . . .	19,103.77	
<b>Gray</b> Herbarium, . . . . .	7,849.62	
<b>Hemenway</b> Gymnasium, . . . . .	12,780.31	
<b>Jefferson</b> Physical Laboratory, . . . . .	2,604.00	
<b>Appleton</b> Chapel, . . . . .	8,119.28	
Summer Schools, . . . . .	15,440.21	
Books from special Funds and gifts, . . . .	1,354.12	
Apparatus, &c., from special Funds and gifts, .	1,558.71	
Printing, from Publication Funds, . . . . .	1,465.24	
Sundry payments from special Funds, . . . .	11,547.95	
Appropriations for collections and laboratories, .	27,171.78	644,423.95

**Library**, as per Table III (page 82).

Salaries, . . . . .	\$15,000.00	
Services and wages, . . . . .	18,538.45	
Books, . . . . .	15,815.68	
Other expenses, . . . . .	11,156.06	60,510.19

**Divinity School**, as per Table IV (page 84).

Salaries for instruction, . . . . .	\$26,440.62	
Scholarships and Beneficiaries, . . . . .	2,108.99	
Other expenses, . . . . .	8,956.43	37,506.04

**Law School**, as per Table V (page 87).

Salaries for instruction, . . . . .	\$49,900.00	
Scholarships, . . . . .	2,600.00	
Other expenses, . . . . .	27,005.10	79,505.10

Amount carried forward, . . . . . \$934,407.86

*General Statement of Receipts and Disbursements  
for the year ending*

INCOME (*continued*).

Amounts brought forward, . . . .	\$37,532.88	\$34,330.63
Interest on Public Funds ( <i>continued</i> ).		
County of Ramsey, Minn., 4½'s, . . . . .	36.00	
Washington County, Ill., 6's, . . . . .	108.33	37.677.21
Interest on Sundry Bonds (after deducting \$1,086.56 for sinking premiums).		
Metropolitan Tel. & Tel. Co. 5's, . . . . .	\$7,500.00	
New England Tel. and Tel. Co. 6's, . . . . .	7,128.90	
"    "    "    5's, . . . . .	484.45	
American Bell Telephone Co. 4's, . . . . .	6,764.22	
Walter Baker & Co. Ltd. 4½'s, . . . . .	17,950.05	
Chicago Junc. Railways & Union Stock Yards Co. 5's, . . . . .	14,979.85	
Broadway Realty Co. 5's, . . . . .	8,052.62	
Girard Point Storage Co. 3½'s, . . . . .	691.52	
Hecker-Jones-Jewell Milling Co. 6's, . . . . .	54.75	
Boston Athletic Association 5's, . . . . .	149.31	
Chicago Junc. Railways & Union Stock Yards Co. (Income) 5's, . . . . .	1,597.22	65,352.89
Interest on Railroad Bonds (after deducting \$20,593.54 for sinking premiums).		
Fremont, Elkhorn & Mo. Valley 6's, . . . . .	\$600.00	
Consolidated R. R. of Vermont 5's, . . . . .	1,740.00	
Rutland 6's, . . . . .	569.33	
Rutland 5's, . . . . .	930.00	
Ogdensburg & Lake Champlain 6's, . . . . .	930.00	
Chicago, Burlington & Northern 5's, . . . . .	150.00	
Chicago, Burlington & Quincy 4's, . . . . .	228.70	
Chicago, Burlington & Quincy 7's, . . . . .	24,136.58	
Chicago, Burlington & Quincy conv. 5's, . . . . .	3,750.00	
Burlington & Mo. River in Neb. 6's, . . . . .	23,005.59	
Eastern sterling 6's, . . . . .	5,715.36	
Eastern 6's, . . . . .	18,578.51	
Fort Scott, So. E. & Memphis 7's, . . . . .	5,662.69	
Chicago & No. W., Madison Extension 7's, . . . . .	5,310.09	
Minneapolis Union 5's, . . . . .	4,866.83	
Kansas & Missouri 5's, . . . . .	2,700.00	
Union Pacific 4's, . . . . .	18,000.00	
Old Colony 4's, . . . . .	38.56	
Boston & Albany 5's, . . . . .	97.92	
Fitchburg 5's, . . . . .	114.45	
Portland & Ogdensburg 5's . . . . .	56.94	
Maine Central 4½'s, . . . . .	58.75	

Amounts carried forward, . . . \$117,240.30 \$137,360.73



*of the Treasurer of Harvard College,  
July 31, 1899.*

EXPENSES (*continued*).

Amount brought forward, . . . . .		\$934,407.86
<b>Medical School</b> , as per Table VI (page 88).		
Salaries for instruction, . . . . .	\$93,349.00	
Fees repaid to Instructors, . . . . .	5,981.25	
Scholarships and Beneficiaries, . . . . .	4,694.03	
Prizes and expenses, . . . . .	243.75	
<b>Warren Anatomical Museum</b> , . . . . .	994.22	
Sundry payments made from special Funds and gifts, . . . . .	2,515.04	
Laboratory expenses, &c., . . . . .	26,046.49	
Other expenses, . . . . .	29,748.01	
Books from special Funds, . . . . .	747.71	164,319.50
<hr/>		
<b>Dental School</b> , as per Table VII (page 91).		
Salaries for instruction, . . . . .	\$12,396.00	
Other expenses, . . . . .	15,590.04	27,986.04
<hr/>		
<b>Museum of Comparative Zoölogy</b> , as per Table VIII (page 92).		
Paid from sundry Funds on the order of the Faculty, . . . . .	\$19,474.08	
<b>Sturgis Hooper Fund</b> , salaries and ex- penses, . . . . .	6,026.90	
Scholarship, . . . . .	250.00	25,750.98
<hr/>		
<b>Peabody Museum of American Archae- ology and Ethnology</b> , as per Table IX (page 93).		
<b>Peabody Professor Fund</b> , <b>Peabody Pro- fessor</b> , . . . . .	\$2,329.26	
Fellowships and Scholarships, . . . . .	1,773.52	
Other expenses, . . . . .	8,103.13	12,205.91
<hr/>		
<b>Observatory</b> , as per Table X (page 94).		
Salaries, . . . . .	\$11,800.00	
Other expenses, . . . . .	38,686.57	50,486.57
<hr/>		
<b>Bussey Institution</b> , as per table XI (page 95).		
Salaries for instruction, . . . . .	\$6,400.00	
Other expenses, . . . . .	9,190.13	15,590.13
<hr/>		
<b>Arnold Arboretum</b> , as per Table XI (page 96).		
Salaries, . . . . .	\$3,500.00	
Other expenses, . . . . .	8,076.63	11,576.63
<hr/>		
Amount carried forward, . . . . .		\$1,242,323.62

*General Statement of Receipts and Disbursements  
for the year ending*

INCOME (*continued*).

Amounts brought forward, . . . \$117,240.30 \$137,360.73

Interest on Railroad Bonds (*continued*).

Atchison, Topeka & Santa Fe 4's, . . . . .	56.25	
Chicago, Milwaukee & St. Paul 6's, . . . . .	48.33	
Norwood & Montreal 5's, . . . . .	171.53	
Chicago, Rock Island & Pacific 4's, . . . . .	1,960.67	
Chicago Terminal Transfer 4's, . . . . .	1,863.40	
New York Central & Hudson River 3½'s, . . . . .	1,190.00	
New England 5's, . . . . .	140.98	
Long Island City 4½'s, . . . . .	39.75	
Lowell, Lawrence & Haverhill Street 5's. . . . .	75.12	
West End Street 4½'s, . . . . .	66.25	
"    "    "    4's, . . . . .	45.55	
Wakefield & Stoneham Street 5's, . . . . .	75.00	
Metropolitan Horse 5's, . . . . .	44.73	
Lynn & Boston Street 5's, . . . . .	50.00	
Middlesex Street 5's, . . . . .	40.55	
Naumkeag Street 5's, . . . . .	57.93	123,166.34

Dividends on Manufacturing Stocks.

Amoskeag Manufacturing Co., . . . . .	\$960.00	
Merrimack " " . . . . .	1,020.00	
Pacific Mills, . . . . .	2,000.00	3,980.00

Dividends on Railroad Stocks.

Chicago, Burlington & Quincy, . . . . .	\$6,852.00	
New York Central & Hudson River, . . . . .	8,080.00	
Rutland, preferred, . . . . .	1,600.00	
Northern (N. H.), . . . . .	1,740.00	
Fitchburg, preferred, . . . . .	948.00	
Boston & Maine, . . . . .	1,902.00	
Boston & Lowell, . . . . .	2,880.00	
Old Colony, . . . . .	2,485.00	
West End Street, preferred, . . . . .	608.00	27,095.00

Dividend on First National Bank Stock, . . . . . 156.00

Real Estate Investments, from rents, &c., net receipts.

Cambridge (University Houses and Lands)

Gross receipts, . . . . .	\$39,301.69		
Less Taxes, . . . . .	\$6,002.04		
Insurance, . . . . .	2,346.91		
Repairs, improvements, care, &c., . . . . .	22,797.42	31,146.37	\$8,155.32

Amounts carried forward, . . . \$8,155.32 \$291,758.07

of the Treasurer of Harvard College,  
July 31, 1899.

EXPENSES (*continued*).

Amount brought forward, . . . . .	\$1,242,323.62	
<b>School of Veterinary Medicine, as per</b> Table XII (page 97).		
Salaries for instruction, . . . . .	\$5,673.33	
Scholarships, . . . . .	210.00	
Other expenses, . . . . .	15,913.07	
	<u>\$21,796.40</u>	
Less deficit for 1898-99 assumed by the University,	3,521.01	18,275.39
<b>Annuities from the following Funds.</b>		
Bussey Trust, . . . . .	\$4,000.00	
Gurney, . . . . .	1,000.00	
Anonymous, . . . . .	200.00	5,200.00
<b>Class Funds.</b>		
Paid the Secretary of the <b>Class of 1844</b> , . .	\$150.00	
“ “ “ “ <b>1853</b> , . .	149.00	299.00
<b>Sundry payments from income.</b>		
From <b>Gray</b> Fund for Engravings, collections, salary and expenses, . . . . .	\$1,148.05	
From <b>Daniel Williams</b> Fund, for the benefit of the Herring Pond and Masphee Indians, . .	849.32	
From <b>Sarah Winslow</b> Fund, to the Minister and Teacher at Tyngsborough, Mass., . . . .	204.09	
From <b>John Witt Randall</b> Fund, collections, salary and expenses, . . . . .	928.15	
From <b>Bussey</b> Trust, expenses in connection with the <b>Bussey</b> busts, . . . . .	2.50	3,132.11
<b>Construction Funds.</b>		
<b>J. W. and Belinda L. Randall</b> Fund, . . .	\$48,767.41	
<b>Henry L. Pierce</b> , . . . . .	112.43	
<b>Stillman</b> Infirmary, . . . . .	3,854.30	
Gifts for <b>Phillips Brooks House</b> , . . . .	10,000.00	
“ “ the Improvement of The Soldier's Field,	5,911.44	68,645.58
Total amount of expenses, . . . . .	\$1,337,875.70	
<b>INVESTMENTS AND SUNDRY PAYMENTS.</b>		
\$2,000 Massachusetts 3½'s ( <b>Robert Troup Paine</b> ),	\$2,198.22	
27,000 Burlington & Missouri River R. R. (Neb.) non-exempt 6's ( <b>Price Greenleaf</b> ), . .	29,261.25	
2,000 Chicago, Burlington & Quincy R. R. 3½'s ( <b>Price Greenleaf</b> ), . . . . .	2,000.00	
Amounts carried forward, . . . . .	\$33,459.47	\$1,337,875.70

*General Statement of Receipts and Disbursements  
for the year ending*

INCOME (*continued*).

Amounts brought forward, . . . . .	\$8,155.32	\$291,758.07	
Real Estate Investments ( <i>continued</i> ).			
Boston (general investments).			
Gross receipts, . . . . .	\$187,839.60		
Less Taxes, . . . . .	\$34,578.47		
Insurance, . . . . .	2,270.23		
Repairs, improvements, care, &c., . . . . .	9,488.47		
Repaid to capital, . . . . .	2,000.00	48,337.17	139,502.43
Bussey real estate.			
Gross receipts, . . . . .	\$41,402.78		
Less Taxes, . . . . .	\$8,170.88		
Insurance, . . . . .	1,374.36		
Interest, . . . . .	1,700.27		
Repairs, improvements, care, &c., . . . . .	5,601.47		
Heat and power, . . . . .	4,466.82	21,313.80	20,088.98
Sundry estates (special investments).			
Gross receipts, . . . . .	\$4,872.02		
Less Taxes, . . . . .	\$849.74		
Repairs, . . . . .	694.76	1,544.50	3,327.52 171,074.25
Term Bills.			
College, as per Table II, . . . . .	\$442,760.12		
Divinity School, as per Table IV, . . . . .	7,984.43		
Law School, as per Table V, . . . . .	82,334.83		
Medical School, as per Table VI, . . . . .	110,393.74		
Dental School, as per Table VII, . . . . .	24,918.18		
Peabody Museum of American Archaeology and Ethnology, as per Table IX, . . . . .	951.85		
Bussey Institution, as per Table XI, . . . . .	1,055.00		
School of Veterinary Medicine, as per Table XII, . . . . .	3,597.70		673,995.85
Sundries.			
William Pennoyer Annuity, . . . . .	\$52.86		
Asa Gray's copyrights, . . . . .	1,602.04		
Matthews Scholarships ( $\frac{1}{2}$ net rents of Hall), . . . . .	2,352.38		
Trustees of Edward Hopkins, . . . . .	205.69		
Sale of grass, wood, old material, &c., . . . . .	3,116.06		
Sale of old examination papers, . . . . .	306.96		
Sale of tickets to Commencement Dinner, . . . . .	833.00		
Sale of tickets to Divinity School Alumni Dinner, . . . . .	34.00		
Sale of books, pamphlets, catalogues, &c., . . . . .	2,826.05		
Board of horses, cattle, &c., at Bussey Institution, . . . . .	4,696.02		
Amounts carried forward, . . . . .	\$16,025.06	\$1,136,828.17	



of the Treasurer of Harvard College,  
July 31, 1899.

# INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amounts brought forward, . . . . .	\$33,459.47	\$1,337,875.70
\$35,000 American Bell Telephone Co. 4's ( <b>Price</b> <b>Greenleaf</b> ), . . . . .	35,612.50	
100,000 American Bell Telephone Co. 4's, . . . . .	103,000.00	
100,000 New England Tel. & Tel. Co. 5's, . . . . .	116,000.00	
100,000 Chicago Junction Railways & Union Stock Yards (income) 5's, . . . . .	100,000.00	
100,000 Chicago, Rock Island & Pacific Railway 4's, . . . . .	107,000.00	
100,000 Chicago Terminal Transfer R. R. 1st M. 4's, . . . . .	95,772.50	
200,000 Metropolitan West Side Elevated Railway 1st M. 4's . . . . .	192,746.25	
100,000 Baltimore & Ohio R. R. 1st M. 4's, . . . . .	96,625.00	
100,000 Long Island Railway Co. Unified M. 4's, . . . . .	93,500.00	
100,000 New York Central & Hudson River R. R. (L. S. & M. S. Coll.) 3½'s, . . . . .	102,477.50	
25,000 Chicago Burl. & Quincy R. R. 3½'s, . . . . .	25,000.00	
16,000 Fort Scott, South Eastern & Memphis R. R. 1st M. 7's, . . . . .	16,420.00	
1,000 shares Chicago, Burl. & Quincy R. R. stock, received in exchange for \$100,000 in Chicago, Burlington & Quincy R. R. conv. 5's, valued at . . . . .	104,384.30	
1,000 shares Essex Street Trust (70% paid), . . . . .	70,000.00	
2,000 shares Scollay Building Trust (50% paid), . . . . .	100,000.00	
Accrued interest and expenses on bonds, . . . . .	9,961.26	1,401,958.78
Improvements, Adams estate, . . . . .	\$10,813.62	
Commission on sale of real estate, and expenses, . . . . .	3,046.82	
Legal services, reversion of Buildings on Brattle St., . . . . .	15.00	
Advances to Dining Hall Association, . . . . .	4,769.34	18,644.78
Invested in notes of manufacturing companies, &c., . . . . .	\$907,510.15	
Less mortgages and notes paid off, . . . . .	554,610.15	352,900.00
Paid Baring Brothers & Co. in account, . . . . .	\$121.40	
Less expenses, . . . . .	.16	121.24
Property received as part of the bequests of <b>Henry</b> <b>C. Warren</b> . 200 shares West End Street Railway Co., pre- ferred, . . . . .	\$22,400.00	
39 shares First National Bank, . . . . .	8,073.00	
84 shares Boston & Albany R. R., . . . . .	21,252.00	
64 shares Boston Elevated Railway Co. (one-half paid), . . . . .	6,976.00	
\$7,000 New England R. R. Cons. M. 5's, . . . . .	9,240.00	
5,000 Norwood & Montreal R. R. 1st M. 5's, . . . . .	5,693.75	
Amounts carried forward, . . . . .	\$73,634.75	\$3,111,500.50

*General Statement of Receipts and Disbursements  
for the year ending*

INCOME (*continued*).

Amounts brought forward, . . . .	\$16,025.06	\$1,136,828.17
Sundries ( <i>continued</i> ).		
Repayment of advances for microscopes, . . . .	1,136.00	
Laboratory instruction to Dental and Veterinary students at Medical School, . . . . .	5,500.00	
Laboratory instruction to Medical and Veterinary students at Dental School, . . . . .	720.00	
Subscriptions to Veterinary Hospital, . . . . .	800.00	
Use of Library by resident graduates and others, . . . . .	115.00	
Use of lockers in <b>Hemenway</b> Gymnasium, . . . . .	3,829.00	
Use of Gymnasium by graduates, . . . . .	20.00	
Use of Buildings (not Univ. Houses and Lands), . . . . .	4,680.01	
Fees for admission and condition examinations, . . . . .	2,777.00	
Fees in Infirmary, Dental School, . . . . .	5,808.87	
Fees from Veterinary Hospital and Forge, . . . .	12,991.18	
Fees from Free Clinic, . . . . .	247.40	
Fees for examination for degree of Ph.D., . . . .	90.00	
Laboratory fees, . . . . .	19,374.28	
Fees for Summer Courses, . . . . .	\$15,522.50	
Other receipts from Summer Courses, . . . . .	<u>247.52</u>	15,770.02
Fees for use of camp at Martha's Vineyard, . . . .	13.18	
Fines, . . . . .	289.52	
Insurance premiums returned, . . . . .	398.57	
Fees from Summer School, Divinity School, . . .	1,575.00	
Trustee of <b>C. L. Hancock</b> bequest, . . . . .	577.72	
Commission on purchase of books, . . . . .	60.62	
Transfer of wages between departments, . . . .	1,091.67	
"    interest    "    "    . . . . .	21.85	
"    salary    "    "    . . . . .	<u>4,000.00</u>	97,911.95
Sundry Gifts for immediate use (see page 19), . . . . .		<u>161,368.90</u>
Total amount of income, . . . . .		<u>\$1,396,109.02</u>

RECEIPTS EXCLUSIVE OF INCOME.

GIFTS FOR CAPITAL ACCOUNT.

<b>Swift</b> Scholarship Fund, . . . . .	\$1,000.00
<b>John Thomson Taylor</b> Scholarship Fund, . . . .	5,000.00
<b>Kenneth Matheson Taylor</b> Fund, . . . . .	5,000.00
<b>Christopher M. Weld</b> Scholarship Fund, . . . .	8,000.00
<b>Edward Austin</b> Fund, . . . . .	425,000.00
<b>Edward Austin</b> Fund (Bacteriological Laboratory), . . . .	8,500.00
Professorship of Hygiene Fund, . . . . .	155,668.67
<b>Caroline Brewer Croft</b> Fund, . . . . .	<u>92,025.00</u>

Amounts carried forward, . . . . . \$700,193.67 \$1,396,109.02

*of the Treasurer of Harvard College,  
July 31, 1899.*

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

	Amounts brought forward, . . . . .	\$73,634.75	\$3,111,500.50
\$12,000	City of Fitchburg 4's, . . . . .	13,773.60	
4,000	" Danville, Ill., 5's, . . . . .	4,215.00	
9,000	" Boston 4's, . . . . .	9,765.00	
11,000	" Los Angeles (Sewer) 5's, . . . . .	11,239.37	
5,000	Boston Athletic Association 5's, . . . . .	5,025.00	
1,000	United States 5's, . . . . .	1,124.37	
Deposit	in Suffolk Savings Bank, . . . . .	1,017.50	
"	" Franklin " " . . . . .	1,017.50	
"	" Home " " . . . . .	1,020.00	
"	" Boston Five Cents Savings Bank, . . . . .	1,035.30	
"	" Provident Institution for Savings, . . . . .	1,017.50	123,884.89
Property received for the Professorship of Hygiene.			
2,000	City of Springfield 3½'s, . . . . .	\$2,052.50	
2,000	" " Somerville 4½'s, . . . . .	2,205.00	
2,000	" " " 4's, . . . . .	2,162.80	
2,000	" " St. Louis 6's, . . . . .	2,000.00	
1,000	" " " 5's, . . . . .	1,007.50	
2,000	" " " 4's, . . . . .	2,092.50	
2,000	" " Cleveland, 3- <sup>6</sup> / <sub>10</sub> 5's, . . . . .	2,025.40	
2,000	" " " 4's, . . . . .	2,052.50	
2,000	" " Columbus 4's, . . . . .	2,095.00	
2,000	" " Cincinnati 5's, . . . . .	2,341.40	
2,000	" " Dayton 5's, . . . . .	2,412.50	
2,000	" " Duluth 5's, . . . . .	2,268.00	
2,000	" " Los Angeles 5's, . . . . .	2,157.50	
2,000	" " Portsmouth, O., 4's, . . . . .	2,002.50	
2,000	" " St. Paul 4½'s, . . . . .	2,360.00	
3,000	" " " 5's, . . . . .	3,606.00	
2,000	" " Tacoma 6's, . . . . .	2,076.25	
2,000	" " Minneapolis 4½'s, . . . . .	2,308.60	
2,000	" " " 4's, . . . . .	2,250.00	
2,000	" " Omaha 6's, . . . . .	2,012.50	
2,000	" " Marlborough 4's, . . . . .	2,160.00	
2,000	" " Detroit 6's, . . . . .	2,348.40	
2,000	" " Holyoke 4's, . . . . .	2,119.20	
4,000	" " Jersey City 5's, . . . . .	4,787.50	
5,000	Town of Johnston, R. I., 4's, . . . . .	5,231.40	
2,000	" " Pawtucket 4's, . . . . .	2,120.00	
2,000	County of Ramsey, Minn., 4½'s, . . . . .	2,337.50	
2,000	" " Washington, Ill., 6's, . . . . .	2,017.50	
6,000	American Bell Telephone 4's, . . . . .	6,180.00	
4,000	New England Tel. & Tel. 5's, . . . . .	4,600.00	
3,000	Chicago, Burl. & Quincy R. R. 4's (Reg.), . . . . .	3,007.50	
2,000	" " " " 4's, . . . . .	2,240.00	
	Amounts carried forward . . . . .	\$82,637.45	\$3,235,385.39

*General Statement of Receipts and Disbursements  
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

Amounts brought forward, . . . \$700,193.67 \$1,396,109.02

GIFTS FOR CAPITAL ACCOUNT (*cont'd*).

<b>Henry L. Pierce</b> Residuary Bequest (additional),	30,000.00	
<b>Coolidge</b> Debating Prizes Fund, . . . . .	5,000.00	
<b>Alexander Wheelock Thayer</b> Fund, . . . . .	6,000.00	
<b>Charles Haven Goodwin</b> Schol. Fund (additional),	1,000.00	
<b>George Emerson Lowell</b> Scholarship Fund, . .	10,000.00	
<b>James Barr Ames</b> Fund, . . . . .	3,000.00	
<b>Jacob Wendell</b> Fund, . . . . .	5,000.00	
<b>Andrew Bigelow</b> Fund, . . . . .	4,950.00	
<b>Susan B. Lyman</b> Fund, . . . . .	3,000.00	
<b>Asa Gray Memorial</b> Fund, . . . . .	30,936.00	
<b>Stuart Wadsworth Wheeler</b> Fund, . . . . .	5,000.00	
<b>Surgical Laboratory</b> Fund (additional), . . . . .	1,000.00	
<b>School of Comparative Medicine</b> Fund, . . . . .	2,000.00	
<b>Henry C. Warren</b> Fund, . . . . .	108,901.77	
<b>Harvard Oriental Series</b> Fund, . . . . .	15,000.00	
<b>Dental School Endowment</b> Fund (additional), . . . .	10,000.00	
<b>Henry C. Warren</b> Exploration Fund, . . . . .	10,000.00	
<b>Arnold Arboretum</b> Fund, . . . . .	13,500.00	
<b>Architecture Building Endowment</b> Fund, . . . . .	100,000.00	
<b>Fund of the Class of 1851</b> , . . . . .	507.80	
<b>Fund of the Class of 1851</b> (anonymous), . . . . .	500.00	
<b>Free Bed Fund of the Class of 1868</b> , . . . . .	3,384.71	
<b>Josiah Stickney</b> Fund, . . . . .	12,000.00	
<b>John B. and Buckminster Brown</b> Professorship (additional), . . . . .	15,353.12	
<b>Calvin Ellis</b> Fund, . . . . .	242,233.70	
<b>Calvin Ellis Aid</b> Fund, . . . . .	45,000.00	1,383,460.77

SALES.

<b>Deposit in Franklin Savings Bank</b> , withdrawn, . . .	\$1,017.50
“ “ <b>Provident Institution for Savings</b> , withdrawn,	1,017.50
“ “ <b>Suffolk Savings Bank</b> , withdrawn, . . . .	1,017.50
“ “ <b>Boston Five Cents Sav. Bank</b> , withdrawn,	1,035.30
“ “ <b>Home Savings Bank</b> , withdrawn, . . . .	1,020.00
<b>\$7,000 New England R. R. Cons. M. 5's</b> , . . . . .	9,240.00
<b>12,000 City of Fitchburg 4's</b> , . . . . .	13,773.60
<b>1,000 United States 5's</b> , . . . . .	1,124.37
<b>4,000 City of Danville, Ill., 5's</b> , . . . . .	4,215.00
<b>5,000 Boston Athletic Association 5's</b> , . . . . .	5,025.00
<b>5,000 Norwood &amp; Montreal 1st M. 5's</b> , . . . . .	5,693.75
<b>11,000 Los Angeles Sewer 5's</b> , . . . . .	11,239.37
<b>6,000 American Bell Telephone Co. 4's</b> , . . . . .	6,180.00

Amounts carried forward, . . . \$61,598.89 \$2,779,569.79



*of the Treasurer of Harvard College,  
July 31, 1899.*

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amounts brought forward, . . . . .		\$82,637.45	\$3,235,385.39
\$4,000 Old Colony R. R. 4's, . . . . .	4,560.00		
3,000 Boston & Albany R. R. 5's, . . . . .	3,142.50		
2,000 Eastern R. R. 6's, . . . . .	2,367.50		
4,000 Fitchburg R. R. 5's, . . . . .	4,520.00		
2,000 Portland & Ogdensburg R. R. 5's, . . . . .	2,197.50		
2,000 Maine Central R. R. 4½'s, . . . . .	2,245.20		
3,000 Atch., Topeka & S. Fe R. R. Gen'l M. 4's, . .	3,075.00		
1,500 " " " adjustment 4's, . .	1,218.75		
1,500 Union Pacific R. R. 4's, . . . . .	1,623.75		
2,000 Chicago, Milwaukee & St. Paul R. R. 6's, . .	2,658.40		
2,000 Long Island City Railway 4½'s, . . . . .	2,000.00		
4,000 Lowell, Lawrence & Haverhill Street Ry. 5's,	4,217.50		
2,000 West End Street Railway 4½'s, . . . . .	2,240.00		
2,000 " " " 4's, . . . . .	2,160.00		
2,000 Wakefield & Stoneham Street Railway 5's, . .	2,097.50		
2,000 Metropolitan Horse Railway 5's, . . . . .	2,118.60		
2,000 Lynn & Boston Street Railway 5's, . . . . .	2,262.50		
2,000 Middlesex Street Railway 5's, . . . . .	2,134.00		
2,000 Naumkeag Street Railway 5's, . . . . .	2,098.20		
2,000 Hecker-Jones-Jewell Milling Co. 6's, . . . .	1,870.00		
5,000 Policy Mass. Hospital Life Insurance Co., . .	5,000.00		
45 shares Pullman Palace Car Co., . . . . .	7,153.60		
10 " Chicago, Burl. & Quincy R. R., . . . .	1,470.04		
20 " H. B. Claflin Co. (preferred), . . . .	1,996.85		
			149,064.84

Property received on account of the bequests of **Calvin Ellis.**

Mortgage Notes, . . . . .	\$44,000.00	
160 shares Boston Coöperative Building Co., . .	5,600.00	
120 " Old Colony R. R., . . . . .	24,360.00	
20 " Mass. Mutual Fire Insurance Co., . .	2,000.00	
91 " Boston & Maine R. R. (preferred), . .	15,925.00	
40 " Vermont & Massachusetts R. R., . .	6,610.00	
8 " Old Boston National Bank, . . . . .	937.00	
17 " Merchants National Bank, . . . . .	2,813.50	
30 " Boston & Providence, R. R., . . . .	9,000.00	
156 " N. Y., New Haven & Hartford R. R., . .	33,696.00	
15 " Boston Real Estate Trust, . . . . .	20,703.75	
200 " Chicago, Burl. & Quincy R. R., . . . .	27,400.00	
150 " Boston & Albany R. R., . . . . .	38,550.00	
50 " Boston & Lowell R. R., . . . . .	12,000.00	
\$10,000 Burl. & Mo. River (Neb.) R. R. 6's, . . . .	12,695.83	
3,000 Kansas City Belt R. R. 1st M. 6's, . . . .	3,338.25	
9,000 Lawrence Gas Co. 1st M. 5's, . . . . .	9,296.25	
5,000 Kansas & Missouri R. R. 1st M. 5's, . . . .	3,500.00	

Amounts carried forward, . . . . . \$272,425.58 \$3,384,450.23

*General Statement of Receipts and Disbursements  
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

Amounts brought forward, . . . . \$61,598.89 \$2,779,569.79

SALES (*continued*).

\$3,000 Boston & Albany R. R. 5's, . . . . .	3,142.50
3,000 Atchison, Topeka & S. Fe R. R. Gen'l M. 4's,	3.075.00
1,500 " " " " adjustment 4's,	1,218.75
3,000 Chicago, Burl. & Quincy R. R. 4's, . . . . .	3,007.50
2,000 " " " " 4's, . . . . .	2,240.00
2,000 Eastern R. R. 6's, . . . . .	2,367.50
4,000 Fitchburg R. R. 5's, . . . . .	4,520.00
2,000 Chicago, Milwaukee & St. Paul R. R. 6's, . .	2,658.40
4,000 Lowell, Lawrence & Haverhill St. Railway 5's,	4,217.50
2,000 Lynn & Boston St. Railway 5's, . . . . .	2,262.50
4,000 Old Colony R. R. 4's, . . . . .	4,560.00
2,000 Metropolitan Horse Railway 5's, . . . . .	2,118.60
2,000 Portland & Ogdensburg R. R. 5's, . . . . .	2,197.50
2,000 Maine Central R. R. 4½'s, . . . . .	2,245.20
2,000 Middlesex Street Railway 5's, . . . . .	2,134.00
2,000 West End Street Railway 4½'s, . . . . .	2,240.00
2,000 " " " " 4's, . . . . .	2,160.00
1,500 Union Pacific R. R. 4's, . . . . .	1,623.75
2,000 Hecker-Jones-Jewell Milling Co. 6's, . . . .	1,870.00
4,000 New England Tel. & Tel. Co. 5's, . . . . .	4,600.00
2,000 Long Island City Railway 4½'s, . . . . .	2,000.00
2,000 Naumkeag Street Railway 5's, . . . . .	2,098.20
2,000 Wakefield and Stoneham St. Railway 5's, . .	2,097.50
2,000 City of Cleveland 3 <sup>65</sup> / <sub>100</sub> 's, . . . . .	2,025.40
2,000 " " Omaha 6's, . . . . .	2,012.50
2,000 " " Cleveland 4's, . . . . .	2,052.50
2,000 " " Columbus 4's, . . . . .	2,095.00
2,000 " " Cincinnati 5's, . . . . .	2,341.40
2,000 " " Detroit 6's, . . . . .	2,348.40
2,000 " " Dayton 5's, . . . . .	2,412.50
2,000 " " Duluth 5's, . . . . .	2,268.00
2,000 " " Los Angeles 5's, . . . . .	2,157.50
2,000 " " Portsmouth, O., 4's, . . . . .	2,002.50
2,000 " " Marlborough 4's, . . . . .	2,160.00
4,000 " " Jersey City 5's, . . . . .	4,787.50
2,000 " " St. Paul 4½'s, . . . . .	2,360.00
2,000 " " Minneapolis 4's, . . . . .	2,250.00
2,000 " " " 4½'s, . . . . .	2,308.60
2,000 " " Holyoke 4's, . . . . .	2,119.20
1,000 " " St. Louis 5's, . . . . .	1,007.50
3,000 " " St. Paul 5's, . . . . .	3,606.00

Amounts carried forward, . . . . \$164,567.79 \$2,779,569.79

*of the Treasurer of Harvard College,  
July 31, 1899.*

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amounts brought forward, . . . . .	\$272,425.58	\$3,384,450.23
\$5,000 Chicago, Burl. & Quincy R. R. (D. E.) 4's, .	5,188.19	
4,000 " " " " (conv.) 5's, .	5,437.78	
2,000 " " " " 7's, . . . . .	2,275.28	
1,500 Portsmouth, Great Falls & Conway R.R. 1st M.		
4½'s, . . . . .	1,906.87	287,233.70
Legal services in connection with <b>Charles L.</b>		
<b>Hancock</b> bequest, . . . . .		400.50
Legal services and taxes, Muddy River lot, Woodland		
Hill Estate, . . . . .		801.00

Amount carried forward, . . . . . \$3,672,885.43

*General Statement of Receipts and Disbursements  
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

Amounts brought forward, . . . \$164,567.79 \$2,779,569.79

SALES (*continued*).

\$2,000 City of Somerville 4's, . . . . .	\$2,162.80	
2,000 " " St. Louis 6's, . . . . .	2,000.00	
2,000 " " St. Louis 4's, . . . . .	2,092.50	
2,000 " " Somerville 4½'s, . . . . .	2,205.00	
2,000 " " Tacoma 6's, . . . . .	2,076.25	
2,000 " " Springfield 3½'s, . . . . .	2,052.50	
2,000 Town of Pawtucket 4's, . . . . .	2,120.00	
5,000 " " Johnston, R. I., 4's, . . . . .	5,231.40	
2,000 County of Ramsey, Minn., 4½'s, . . . . .	2,337.50	
2,000 " " Washington, Ill., 6's, . . . . .	2,017.50	
3,000 Kansas City Belt R. R. 1st M. 6's, . . . . .	3,338.25	
2,000 Chicago, Burl. & Quincy R. R. 7's, . . . . .	2,275.28	
4,000 " " " " (conv.) 5's, . . . . .	5,437.78	
5,000 " " " " (D. E.) 4's, . . . . .	5,188.19	
1,500 Portsmouth, Great Falls & Conway R. R. 1st M. 4's, . . . . .	1,906.87	
10,000 Burl. & Mo. River R. R. (Neb.) 6's, . . . . .	12,695.83	
9,000 Lawrence Gas Co. 1st M. 5's, . . . . .	9,296.25	
300,000 United States 5's, . . . . .	337,875.00	
37,200 Rutland R. R. 5's (paid off at par), . . . . .	37,200.00	
46,500 Ogdens. & L. Champlain R. R. 6's (paid off), . . . . .	54,405.00	
28,600 Burl. & Mo. River R. R. (Neb.) 6's (paid off at par), . . . . .	28,600.00	
80,000 Walter Baker & Company Limited 4½'s (paid off at par), . . . . .	80,000.00	
7,000 Fort Scott, South Eastern & Memphis R. R. 1st M. 7's (paid off at 105), . . . . .	7,350.00	
100,000 Chicago, Burl. & Quincy R. R. conv. 5's, exchanged for 1,000 shares Chicago & Burl. R. R. stock, . . . . .	104,384.30	
45 shares Pullman Palace Car Co., . . . . .	7,153.60	
10 " Chicago, Burl. & Quincy R. R., . . . . .	1,470.04	
20 " H. B. Clafin Co., preferred, . . . . .	1,996.85	
160 " Boston Coöperative Building Co., . . . . .	5,600.00	
22 Rights Chicago, Burl. & Quincy R. R., . . . . .	128.15	
Cheshire R. R. Co., dividend of capital, . . . . .	52.56	
Mortgage Notes, . . . . .	44,000.00	939,217.19
Estate Nos. 413-415 Washington St., Boston, . . . . .	\$275,000.00	
Estate No. 153 Milk St., Boston, . . . . .	25,000.00	
Land in West Roxbury taken by Metrop. Park Com., . . . . .	9,104.81	309,104.81

Amount carried forward, . . . . . \$4,027,891.79



*of the Treasurer of Harvard College,  
July 31, 1899.*

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amount brought forward, . . . . . \$3,672,885.43

Amount carried forward, . . . . . \$3,672,885.43

*General Statement of Receipts and Disbursements  
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

Amount brought forward, . . . . . \$4,027,891.79

SUNDRIES.

Dining Hall Association, to reduce debt, . . . . .	\$1,500.00	
Premiums on Bonds, repaid in part, . . . . .	31,264.03	
Advances to accrued interest and expenses on bonds, repaid, . . . . .	6,321.10	
Scholarship and Beneficiary money returned by Bene- ficiaries, . . . . .	398.25	
Repayment, from <b>Stillman</b> Infirmary gift, of the sum paid in 1897-98, on account of University Houses and Lands, towards the cost of the land for the Infirmary, . . . . .	3,854.30	43,337.68

Bursar's Sundry Accounts.

Receipts during the year, . . . . .		394,746.89
Balance, August 1, 1898.		
Cash in Suffolk National Bank, . . . . .	\$10,027.59	
“ National Union Bank, . . . . .	50,134.57	
“ New England Trust Co., . . . . .	206.79	
“ hands of Charles F. Mason, Bursar, . . . . .	26,601.19	
Term Bills due in October, 1898, . . . . .	216,669.04	
“ “ overdue, . . . . .	6,971.05	310,610.23
Total, . . . . .		\$4,776,586.59

*of the Treasurer of Harvard College,  
July 31, 1899.*

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amount brought forward, . . . . . \$3,672,885.43

Bursar's Sundry Accounts.

Payments during the year.

On account of Harvard Dining Association, .	\$198,153.18	
“ “ Foxcroft Club, . . . . .	33,047.60	
On sundry accounts, . . . . .	146,699.39	377,900.17

Balance, July 31, 1899.

Cash in Suffolk National Bank, . . . . .	\$11,912.91	
“ National Union Bank, . . . . .	453,820.35	
“ New England Trust Co., . . . . .	25,215.97	
“ hands of Charles F. Mason, Bursar, . . .	19,855.74	
Term Bills due October, 1899, . . . . .	206,441.71	
“ “ overdue, . . . . .	8,554.31	725,800.99
Total, . . . . .		\$4,776,586.59

*The following Account exhibits the State of the Property, as entered upon the Treasurer's Books, July 31, 1899.*

Separate Investments, as stated in detail on pages 3,

4, 5, 6 and 7 of this report, consisting of

Railroad Bonds, . . . . .	\$224,627.68	
Sundry Bonds, . . . . .	354,061.74	
Railroad Stocks, . . . . .	481,885.24	
Sundry Stocks, . . . . .	34,527.25	
University Houses and Lands, . . . . .	489,274.01	
Other Real Estate, . . . . .	438,203.48	
Sundries, . . . . .	28,569.44	
Cash in New England Trust Co., . . . . .	25,215.97	
"    Suffolk National Bank, . . . . .	485.56	\$2,076,850.37

And "General Investments," as follows:—

Mortgages and Notes.

Mortgages, . . . . .	\$263,500.00	
Boott Cotton Mills' Note, . . . . .	100,000.00	
Massachusetts Cotton Mills' Notes, . . . . .	100,000.00	
Merrimack Manufacturing Co.'s Notes, . . . . .	100,000.00	
Pacific Mills' Note, . . . . .	100,000.00	
Boston Manufacturing Co.'s Note, . . . . .	50,000.00	
Cochecho Manufacturing Co.'s Note, . . . . .	50,000.00	
Manchester Mills' Note, . . . . .	50,000.00	813,500.00

United States Bonds.

\$200,000 United States 5's of 1904, . . . . .	\$221,514.00	
500,000 United States 4's of 1925, . . . . .	604,962.96	826,476.96

Railroad Bonds.

\$397,200 Burl. & Mo. R. in Nebr. non ex. 6's, . .	\$410,581.01	
96,000 Fort Scott, So. E. & Mem., 1st M. 7's, .	97,002.69	
393,000 Eastern, 1st M. 6's of 1906, . . . . .	431,173.62	
£19,600 Eastern " " Sterling of 1906, . . . .	95,383.40	
\$500,000 Chic., Burl. & Quincy Consol. 7's of 1903, .	543,453.64	
25,000 Chic., Burl. & Quincy 3½'s of 1949, . .	25,000.00	
100,000 Chic. & No. W. Madison Ex. 1st M. 7's of 1911, . . . . .	120,278.84	
100,000 Minneapolis Union 1st M. 5's of 1922, .	103,062.83	
400,000 Union Pacific 1st M. & L. G. 4's of 1947, .	353,114.75	
100,000 Chicago, Rock Island & Pacific 4's of 1988, . . . . .	106,960.67	
100,000 Chicago Terminal Transfer 1st M. 4's of 1947, . . . . .	95,772.50	
200,000 Metropolitan West Side Elevated 4's of 1938, . . . . .	192,746.25	
100,000 Baltimore & Ohio 4's of 1948, . . . .	96,625.00	
100,000 Long Island Unified M. 4's of 1949, . .	93,500.00	
100,000 New York Central & H. R. (L. S. & M. S. Coll.) 3½'s of 1998, . . . . .	102,477.50	2,867,132.70

Amount carried forward, . . . . . \$6,583,960.03



Amount brought forward, . . . . . \$6,583,960.03

Sundry Bonds.

\$100,000 Metrop. Tel. & Tel. Co. 1st M. 5's of 1918,	\$99,500.00	
100,000 New England Tel. & Tel. Co. 6's of 1906,	102,078.12	
100,000 New England Tel. & Tel. Co. 5's of 1916,	116,000.00	
200,000 American Bell Tel. Co. 4's of 1908, . .	204,575.00	
250,000 Chicago Junction Railways and Union Stock Yards Coll. Trust 5's of 1915, .	250,322.35	
100,000 Chicago Junction Railways and Union Stock Yards Income 5's of 1907, . .	100,000.00	
100,000 Broadway Realty Co. Purchase money 1st M. 5's of 1926, . . . . .	107,236.84	
320,000 Walter Baker & Co. Ltd. 4½'s of 1903, .	320,000.00	1,299,712.31

Sundry Stocks.

12 shares Amoskeag Manufacturing Co., . . .	\$3,654.00	
17 " Merrimack " " . . .	17,000.00	
20 " Pacific Mills, . . . . .	16,668.29	
1562½ " Chicago, Burl. & Quincy R. R., . .	149,384.30	
2000 " N. Y. Central & Hud. River R. R., .	204,687.50	
1000 " Essex Street Trust (70% paid), . . .	70,000.00	
2000 " Scollay Building Trust (50% paid), .	100,000.00	561,394.09

Real Estate.

Amory Estate, Franklin Street, Boston, . . .	\$165,615.81	
Webb Estate, Washington Street, Boston, . . .	164,604.79	
Gray Estate, Washington Street, Boston, . . .	834,231.77	
Adams Estate, Washington Street, Boston, . . .	250,000.00	
Lowell Estate, Washington Street, Boston, . . .	464,368.91	
Hayward Estate, Washington Street, Boston, . .	578,361.88	
Townsend Estate, Hawkins Street, Boston, . . .	44,569.49	
Reversion of Buildings in Brattle Street, Boston,	1,015.00	2,502,767.65

Sundries.

Advances to <b>Bussey</b> Trust, . . . . .	\$29,835.51	
" " School of Veterinary Medicine, . .	24,406.01	
" " Observatory, . . . . .	182.28	
" " <b>Peabody</b> Museum of American Archaeology and Ethnology, . .	523.20	
" " <b>Gray</b> Herbarium, . . . . .	1,081.18	
" " Botanic Department, . . . . .	13,289.18	
" " University Lands, . . . . .	30,000.00	
" " Dining Hall Association, . . . . .	15,501.50	
" " Sundry Accounts, . . . . .	2,431.85	
Baring Brothers & Co., . . . . .	2,274.31	
Term bills due in October, 1899, . . . . .	206,441.71	
" " overdue, . . . . .	8,554.31	334,521.04
Cash in Suffolk National Bank, . . . . .	\$11,427.35	
" " National Union Bank, . . . . .	453,820.35	
" " hands of Charles F. Mason, Bursar, . . .	19,855.74	485,103.44
Total, . . . . .	\$11,767,458.56	

*The foregoing Property represents the following Funds and Balances, and is answerable for the same.*

Principal, Aug. 1, 1898.	UNIVERSITY FUNDS.	Principal, July 31, 1899.
\$70,320.11	Stock Account (so called), . . . . .	\$24,971.16
141,638.74	Ins. and Guaranty Fund (so called), . . . . .	141,638.74
15,750.00	Israel Munson Fund, . . . . .	15,750.00
16,871.63	Leonard Jarvis Fund, . . . . .	16,871.63
25,000.00	John C. Gray Fund, . . . . .	25,000.00
115,966.56	George B. Dorr Fund, . . . . .	115,966.56
113,817.44	Francis E. Parker Fund, . . . . .	113,817.44
5,000.00	Stanton Blake Fund, . . . . .	5,000.00
4,771.33	Charlotte F. Blanchard Fund, . . . . .	4,771.33
10,000.00	Joseph Lee Fund, . . . . .	10,000.00
100,000.00	William F. Weld Fund, . . . . .	100,000.00
10,000.00	Henry P. Kidder Fund, . . . . .	10,000.00
48,458.50	George Draper Fund, . . . . .	48,458.50
46,913.13	Isaac Sweetser Fund, . . . . .	46,913.13
5,000.00	George Baxter Hyde Fund, . . . . .	5,000.00
101,030.49	Harvard Ellis Fund, . . . . .	101,030.49
5,250.00	Samuel D. Bradford Fund, . . . . .	5,250.00
22,000.00	John Cowdin Fund, . . . . .	22,000.00
23,370.03	John L. Russell Fund, . . . . .	23,370.03
81,950.54	Henry T. Morgan Fund, . . . . .	81,950.54
10,000.00	Theodore Lyman Fund, . . . . .	10,000.00
12,500.00	John W. Carter Fund, . . . . .	12,500.00
20,571.18	Gore Fund, . . . . .	20,571.18
50,000.00	Henry L. Pierce Fund, . . . . .	52,024.37
700,000.00	Henry L. Pierce Residuary Be- quest, . . . . .	455,000.00
	Andrew Bigelow Fund, . . . . .	4,950.00
5,000.00	Seth Turner Fund, . . . . .	5,000.00
30,000.00	William Perkins Fund, . . . . .	30,000.00
20,000.00	Walter Hastings Fund, . . . . .	20,000.00
63,398.27	President's Fund, . . . . .	63,528.53
154.24	Thomas Cotton Fund, . . . . .	154.54
331,705.06	Retiring Allowance Fund, . . . . .	342,680.32
52,239.67	William Hayes Fogg Fund, . . . . .	48,167.68
5,145.65	John W. and Belinda L. Randall Fund, . . . . .	5,256.85
68,484.87	J. W. and Belinda L. Randall Construction Fund, . . . . .	20,610.79
25,079.35	Gifts for Phillips Brooks House, . . . . .	20,504.04
55,635.95	John Parker Fellowships, . . . . .	55,564.64
12,107.05	Robert Treat Paine Fellowship, . . . . .	12,412.76
11,058.70	Harris Fellowship, . . . . .	10,816.31
10,649.74	John Thornton Kirkland Fellows'p, . . . . .	10,863.57
\$2,446,838.23	. . Amounts carried forward, . . . . .	\$2,118,365.13

Principal, Aug. 1, 1893.		Principal, July 31, 1899.
\$2,446,838.23	. . . Amounts brought forward, . . .	\$2,118,365.13
11,289.04	<b>James Walker</b> Fellowship, . . .	11,307.21
32,563.09	<b>Rogers</b> Fellowships, . . . . .	32,182.73
11,227.31	<b>Henry Lee</b> Memorial Fellowship, . . .	11,292.63
10,549.38	<b>Ozias Goodwin</b> Memorial Fellows'p, . . .	10,549.38
21,288.58	<b>Whiting</b> Fellowships, . . . . .	21,465.75
11,110.44	<b>H. B. Rogers</b> Memorial Fellows'p, . . .	11,170.39
11,534.34	<b>John Tyndall</b> Scholarship, . . .	11,563.75
5,045.54	<b>Francis H. Cummings</b> Scholars'p, . . .	5,277.15
17,526.04	<b>William Hilton</b> Scholarships, . . .	17,745.48
39,279.61	<b>Joseph Eveleth</b> Fund, . . . . .	39,255.90
1,573.10	<b>Frank Bolles</b> Memorial Fund, . . .	1,610.30
	<b>Edward Austin</b> Fund, . . . . .	429,876.87
	<b>Alexander Wheelock Thayer</b> Fund, . . . . .	6,034.42
	<b>Calvin Ellis</b> Aid Fund, . . . . .	45,019.10
5,515.16	<b>Ralph Hamilton Shepard</b> Memo- rial Fund, . . . . .	5,768.30
6,761.47	<b>George B. Sohler</b> Prize Fund, . . .	7,065.97
2,869.18	<b>Sumner</b> Prize Fund, . . . . .	3,000.87
2,368.58	<b>John O. Sargent</b> Prize Fund, . . .	2,377.32
3,475.83	<b>Robert N. Toppan</b> Prize Fund, . . .	3,485.38
1,261.91	<b>James Gordon Bennett</b> Prize F'd, . . .	1,279.84
100.00	<b>Dante</b> Prizes (balance), . . . . .	100.00
8,974.10	<b>Lectures on Political Economy</b> Fund, . . .	9,386.01
5,477.64	<b>Ingersoll</b> Lecture Fund, . . . . .	5,437.68
20,000.00	<b>William Belden Noble</b> Lectures, . . .	20,508.43
6,665.34	<b>Gifts for Semitic</b> Collection, . . . . .	6,266.34
212.05	" " " <b>Library</b> , . . . . .	61.57
	<b>Gifts for Collections for a Germanic</b> <b>Museum</b> , . . . . .	1,728.64
		\$2,839,182.54

## COLLEGE FUNDS.

27,748.64	<b>Alford</b> Professorship, . . . . .	\$27,748.64
28,337.40	<b>Boylston</b> " . . . . .	28,337.40
21,619.50	<b>Eliot</b> " . . . . .	21,619.50
10,000.00	<b>Eliot</b> "(Jon. Phillips' gift), . . . . .	10,000.00
3,500.01	<b>Erving</b> " . . . . .	3,500.01
35,990.99	<b>Fisher</b> " . . . . .	35,990.99
20,509.85	<b>Asa Gray</b> " . . . . .	21,451.26
20,217.08	<b>Hersey</b> " . . . . .	20,217.08
21,744.18	<b>Hersey</b> "(Thomas Lee's gift), . . . . .	21,744.18
3,747.33	<b>Hollis</b> "(Mathematics), . . . . .	3,747.33
34,517.60	<b>Hollis</b> "(Divinity), . . . . .	34,517.60
43,062.93	<b>McLean</b> " . . . . .	43,062.93
21,000.00	<b>Perkins</b> " . . . . .	21,000.00
25,020.19	<b>Plummer</b> " . . . . .	25,020.19
\$3,000,521.66	. . . Amounts carried forward, . . .	\$317,957.11
		\$2,839,182.54

Principal, Aug. 1, 1898.		Principal, July 31, 1899.	
\$3,000,521.66	. . Amounts brought forward, . . .	\$317,957.11	\$2,839,182,54
52,500.00	Pope Professorship, . . . . .	52,500.00	
	Professorship of Hygiene, . . . . .	159,419.97	
56,441.25	Rumford Professorship, . . . . .	56,441.25	
23,139.83	Smith " . . . . .	23,139.83	
190,276.57	Gurney Fund, . . . . .	193,010.28	
16,240.38	Fund for Permanent Tutors, . . . .	16,240.38	
15,796.97	Lee Fund for Reading, . . . . .	15,796.97	
150,252.54	Class Subscription Fund, . . . .	150,252.54	
3,191.62	Paul Dudley Fund for Lectures, . .	3,238.13	
31,500.00	Jonathan Phillips Fund, . . . . .	31,500.00	
1,050.00	John A. Blanchard " . . . . .	1,050.00	
7,454.18	John W. P. Abbot " . . . . .	7,796.32	
13,804.07	Daniel H. Pierce " . . . . .	13,867.43	
6,230.00	Daniel Austin " . . . . .	6,230.00	
2,519.78	Schol. & Benef. money returned (bal.),	2,923.81	
342.75	Henry Flynt's Bequest, . . . . .	343.46	
3,551.72	Abbot Scholarship, . . . . .	3,564.76	
1,574.95	Alford " . . . . .	1,647.24	
5,368.58	Bartlett " . . . . .	5,365.02	
5,734.01	Bassett " . . . . .	5,667.20	
12,509.35	Bigelow " . . . . .	12,583.51	
1,833.37	Borden " . . . . .	1,917.50	
111,881.88	Bowditch " . . . . .	111,683.90	
1,701.84	Bright " (balance), . . . . .	1,956.00	
3,689.16	Browne " . . . . .	3,708.49	
5,018.22	Morey Willard Buckminster Sch.,	5,048.55	
31,669.06	Burr Scholarship, . . . . .	31,856.01	
6,121.30	Ruluff S. Choate Scholarship, . . .	6,102.25	
7,910.41	Class of 1802 Scholarship, . . . .	7,973.48	
3,080.28	" 1814 " . . . . .	3,138.31	
6,190.90	" 1815 "(Kirkland), . . . . .	6,275.07	
4,291.63	" 1817 " . . . . .	4,338.63	
3,478.48	" 1828 " . . . . .	3,438.12	
4,674.68	" 1835 " . . . . .	4,689.26	
4,085.01	" 1841 " . . . . .	4,072.56	
4,934.90	" 1852 "(Dana), . . . . .	4,961.41	
10,000.00	" 1856 " . . . . .	10,000.00	
4,516.61	" 1867 " . . . . .	4,573.94	
11,326.09	Crowninshield " . . . . .	11,445.95	
600.00	W. H. Cudworth " (balance), . .	600.00	
5,500.03	George & Martha Derby Sch., . . .	5,585.82	
4,764.49	Julius Dexter Scholarship, . . . .	4,783.26	
5,537.78	W. S. Eliot " . . . . .	5,458.63	
2,057.77	Fall River " . . . . .	2,072.23	
6,070.61	Farrar " . . . . .	6,099.27	
10,874.49	Richard Augustine Gambrill Scholarship, . . . . .	10,973.60	
\$3,861,809.20	. . Amounts carried forward, . . .	\$1,343,287.45	\$2,839,182.54



Principal,  
Aug. 1, 1898.

Principal July 31, 1899.

\$3,861,809.20	. . Amounts brought forward, . . .	\$1,343,287.45	\$2,839,182.54
6,000.00	Charles Haven Goodwin Sch.,	7,000.00	
4,029.83	Benjamin D. Greene Scholarship,	4,064.81	
200.00	Price Greenleaf Sch. (balance),	200.00	
10,254.49	Ebenezer Rockwood Hoar Sch.,	10,325.14	
6,101.58	Levina Hoar Scholarship, . . . .	6,131.66	
12,346.61	Hodges " . . . .	12,713.34	
5,892.00	Hollis " . . . .	5,962.44	
66.66	G. E. Lowell " . . . .	10,069.50	
4,522.00	Matthews " (balance),	2,374.38	
5,629.15	Merrick " . . . .	5,754.18	
7,858.17	Morey " . . . .	8,018.85	
5,491.24	Lady Mowlson " . . . .	5,543.28	
5,341.11	Howard Gardner Nichols Sch.,	5,386.26	
4,377.23	Lucy Osgood Scholarship, . . .	4,578.13	
6,467.02	Pennoyer " . . . .	6,292.64	
4,082.15	Perkins " . . . .	4,119.51	
1,420.74	Wendell Phillips Mem'l Scholars'p,	1,435.96	
1,260.17	Rodger Scholarship, . . . . .	1,318.00	
3,435.78	Henry B. Rogers Scholarship, .	3,393.49	
5,418.91	Edward Russell " . . . .	5,467.64	
5,310.54	Sales Scholarship, . . . . .	5,320.97	
4,423.24	Saltonstall " . . . . .	4,476.26	
5,051.86	Leverett Saltonstall Scholarship,	5,083.75	
6,793.18	Mary Saltonstall Scholarship, . .	6,854.98	
3,234.43	Sever Scholarship, . . . . .	3,232.87	
10,436.13	Sewall " . . . . .	10,515.14	
48,000.58	Shattuck " . . . . .	48,103.83	
5,970.34	Slade " . . . . .	5,911.02	
4,283.02	Story " . . . . .	4,279.61	
2,170.13	Stoughton Scholarship, . . . .	2,385.34	
	Swift " . . . . .	1,024.88	
75,428.00	Thayer " . . . . .	75,890.15	
4,001.85	Gorham Thomas Scholarship, . .	4,035.54	
7,307.34	Toppan " . . . .	7,342.73	
24,729.88	Townsend " . . . .	24,781.65	
4,300.98	Walcott " . . . .	4,365.06	
	Christopher M. Weld Scholars'p,	8,091.80	
	Jacob Wendell Scholarship, . .	5,143.44	
11,016.77	Whiting " . . . .	11,122.45	
1,333.34	Exhibitions, . . . . .	1,333.34	
1,959.70	Palfrey Exhibition, . . . . .	1,969.66	
10,478.01	Henry B. Humphrey Fund, . .	10,483.95	
1,945.44	Robert Keyne Fund, . . (1659)	1,945.44	
1,245.85	William Brattle " . . (1717)	1,254.45	
350.05	Henry Gibbs " . . (1722)	366.12	
336.70	Ephraim Flynt " . . (1723)	352.17	
780.94	Thomas Danforth Fund, (1724)	816.79	

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\$4,202,892.34 . . Amounts carried forward, . . . \$1,709,920.05 \$2,839,182.54

Principal, Aug. 1, 1898.		Principal, July 31, 1899.
\$4,202,892.34	. . Amounts brought forward, . . .	\$1,709,920.05 \$2,839,182.54
163.98	Anne Mills Fund, (1725)	171.51
585.71	Thomas Fitch " (1737)	612.61
210.84	Benjamin Wadsworth Fund, (1737)	220.52
312.35	John Ellery " (1738)	326.67
117.12	Henry Flynt " (1760)	122.49
156.20	Joseph Sewall " (1765)	163.36
437.35	Nathaniel Appleton " (1772)	457.41
281.13	Edward Holyoke " (1743)	294.03
767.75	Mary Lindall " (1812)	803.00
1,200.00	Samuel Ward Fund, . . . . .	1,225.00
2,318.90	John Glover " . . . . .	2,425.34
11,155.10	Quincy Tufts " . . . . .	11,155.10
5,448.73	Day " . . . . .	5,448.73
10,534.61	Munroe " . . . . .	10,534.61
	Susan B. Lyman Fund, . . . . .	3,028.69
201,697.02	Unknown Memorial Fund, . . . . .	100,984.05
4,247.56	Dr. A. P. Peabody Memorial Fund,	4,283.54
5,496.65	Price Greenleaf Aid (balance), .	5,707.65
3,855.37	Boylston Prizes for Elocution, . .	3,777.31
14,598.93	Bowdoin Prizes for Dissertations,	14,979.02
	Coolidge Debating Prizes, . . . . .	5,076.52
1,049.26	Sales Prize, . . . . .	1,052.41
1,603.10	Hopkins Gift for "Deturs" (bal.),	1,639.79
907.91	Chauncey Wright Fund, . . . . .	949.59
50,000.00	Increase S. Wheeler Fund, . .	50,000.00
1,033.57	Fund for Religious Services, . . . .	1,033.57
15,309.17	John E. Thayer Fund, . . . . .	15,404.83
7,080.15	Classical Publ. F'd of Class of 1856,	7,105.12
39,780.00	Botanic Department Fund, . . . . .	39,780.00
66,382.31	Lowell Fund for a Botanic Garden,	66,382.31
23,937.93	Herbarium Fund, . . . . .	20,155.91
	Asa Gray Memorial Fund, . . . . .	31,283.14
75,000.00	Physical Laboratory Endowment, . .	75,000.00
10,159.76	Henry Warren Torrey Fund, .	10,067.88
1,079.56	Elizabeth Torrey Bequest, . . . .	1,125.67
11,014.65	Francis James Child Mem. Fund,	11,015.62
5,980.48	Cyrus M. Warren Fund, . . . . .	5,973.17
7,798.67	Joseph Lovering " . . . . .	8,109.40
	Jefferson Physical Lab'y (balance),	1,950.35
4,277.85	George William Sawin Fund, .	4,361.87
	Harvard Oriental Series Fund, . . .	15,283.53
	Henry C. Warren " . . . . .	110,960.32
	Josiah Stickney " . . . . .	12,252.45
	Architecture Building Endowment Fund, . . . . .	100,382.48
3,398.44	Gifts for Sanskrit Department, . . .	3,280.12
1,770.69	Sundry Gifts (unexpended balances),	1,300.01
\$4,694,041.14	. . Amounts carried forward, . . .	\$2,477,566.75 \$2,839,182.54

Principal, Aug. 1, 1898.		Principal, July 31, 1899.	
\$4,694,041.14	. . Amounts brought forward, . . .	\$2,477,566.75	\$2,839,182.54
233.03	Gifts for Classical Library (balance),	362.26	
21.64	“ Historical “ “	393.25	
7,000.00	Gift for greenhouses at the Botanic Garden, . . . . .		
	Gift for cases and catalogues at the Botanic Garden, . . . . .	3,500.00	
3,850.00	Gifts for College Salaries, . . . . .	2,150.00	2,483,972.26

## LIBRARY FUNDS.

100,000.00	Eben Wright Fund, . . . . .	\$100,000.00	
25,966.38	Constantius “ . . . . .	26,022.88	
500.00	Jarvis “ . . . . .	500.00	
11,925.34	Daniel Treadwell Fund, . . . . .	11,925.34	
10,516.27	Subscription for Library (1859), . .	10,613.50	
2,108.20	Bowditch Fund, . . . . .	2,138.30	
28.00	Bright Fund (balance), . . . . .	131.56	
27,710.85	Edwin Conant Fund, . . . . .	27,727.33	
5,267.54	Denny “ . . . . .	5,333.49	
5,253.74	Farrar “ . . . . .	5,279.94	
3,126.85	Haven “ . . . . .	3,149.47	
10,015.36	Hayes “ . . . . .	10,150.80	
5,252.57	Hayward “ . . . . .	5,294.92	
2,371.12	Hollis “ . . . . .	2,375.69	
2,138.13	Homer “ . . . . .	2,164.44	
5,276.72	Lane “ . . . . .	5,293.34	
24,654.52	Lowell “ . . . . .	25,075.92	
60,122.38	Minot “ . . . . .	60,638.85	
7,101.38	Lucy Osgood “ . . . . .	7,196.74	
6,988.36	Mary Osgood “ . . . . .	7,076.27	
3,967.16	Sales “ . . . . .	4,007.69	
5,331.58	Salisbury “ . . . . .	5,360.19	
20,043.54	Sever “ . . . . .	20,122.98	
3,960.50	Shapleigh “ . . . . .	3,992.40	
37,398.22	Sumner “ . . . . .	37,565.89	
	Kenneth Matheson Taylor Fund, . . . . .	5,037.53	
5,067.15	Tucker “ . . . . .	5,149.38	
5,265.68	Ward “ . . . . .	5,334.35	
15,822.20	Walker “ . . . . .	15,895.19	
312.80	Waterston Gift (balance), . . . . .	282.17	
10,047.52	J. Huntington Wolcott Fund, .	10,159.24	
	J. Randolph Coolidge Gift, .	2,063.40	
546.91	Sundry Gifts, etc. (unexpended bals.),	615.09	433,674.28
\$5,129,232.78	. . Amounts carried forward, . . . . .	\$5,756,829.08	

Principal,  
Aug. 1, 1893.

Principal, July 31, 1899.

\$5,129,232.78	. . Amounts brought forward, . . . . .	\$5,756,829.08
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## DIVINITY SCHOOL FUNDS.

28,424.39	Divinity School (balance), . . . . .	\$28,638.58	
37,583.74	Bussey Professorship, . . . . .	37,583.74	
16,015.81	Parkman " . . . . .	16,015.81	
6,008.43	Hancock " . . . . .	6,008.43	
52,345.73	Winn Professorship of Ecclesiastical History, . . . . .	52,845.73	
40,427.07	Frothingham Professorship, . . .	42,282.67	
20,280.38	Dexter Lectureship, . . . . .	20,280.38	
9,184.69	Henry Lienow Fund, . . . . .	9,184.69	
5,250.00	Mary P. Townsend Fund, . . .	5,250.00	
2,100.00	Winthrop Ward " . . .	2,100.00	
1,050.00	Samuel Hoar " . . .	1,050.00	
1,050.00	Abraham W. Fuller " . . .	1,050.00	
1,050.00	Caroline Merriam " . . .	1,050.00	
7,875.00	Joseph Baker " . . .	7,875.00	
40,000.00	Thomas Tileston of New York Endowment, . . . . .	40,000.00	
10,000.00	Henry P. Kidder Fund, . . . .	10,000.00	
17,000.00	Oliver Ames " . . . .	17,000.00	
1,000.00	Abby Crocker Richmond Fund, .	1,000.00	
71,427.02	New Endowment (1879), . . . . .	71,427.02	
1,000.00	John L. Russell Fund, . . . . .	1,000.00	
10,000.00	William B. Spooner Fund, . . .	10,000.00	
5,000.00	Edwin Conant " . . .	5,000.00	
911.34	Lewis Gould " . . .	911.34	
2,177.95	Joshua Clapp " . . .	2,177.95	
525.00	Hannah C. Andrews " . . .	525.00	
1,000.00	Adams Ayer " . . .	1,000.00	
890.00	Daniel Austin " . . .	890.00	
5,000.00	Haven " . . .	5,000.00	
605.30	Louisa J. Hall " . . .	632.24	
3,238.78	Rushton Dashwood Burr Fund, .	3,372.53	
1,886.74	John W. Quinby " . . . . .	1,973.35	
14,378.90	Jackson Foundation, . . . . .	14,452.24	
5,223.76	Thomas Cary Scholarships, . . .	5,263.54	
2,609.73	George Chapman " . . .	2,629.53	
4,335.26	Joshua Clapp " . . .	4,354.24	
4,991.14	J. Henry Kendall " . . .	5,020.23	
3,360.48	Nancy Kendall " . . .	3,374.70	
13,042.91	Abner W. Buttrick Fund, . . .	13,001.58	
1,050.00	William Pomroy " . . .	1,050.00	
3,994.08	Beneficiary money returned, . . .	4,320.75	456,591.27
<hr/> \$5,582,526.41 . . Amounts carried forward, . . . . .		<hr/> \$6,213,420.35	



Principal, Aug. 1, 1898.	Principal, July 31, 1899.
\$5,582,526.41 . . . Amounts brought forward, . . . . .	\$6,213,420.35

## LAW SCHOOL FUNDS.

70,111.27	Law School (balance), . . . . .	\$97,305.38	
15,750.00	Dane Professorship, . . . . .	15,750.00	
23,979.82	Bussey " . . . . .	23,979.82	
8,340.81	Royall " . . . . .	8,340.81	
94,994.97	Weld " . . . . .	94,994.97	
65,593.38	Bemis " . . . . .	65,604.10	
	James Barr Ames Prize Fund, .	3,270.00	
47,021.25	Law School Book Fund, . . . . .	47,021.25	
100,000.00	Law School Library Fund, . . . . .	100,000.00	
1,587.48	Scholarship money returned, . . . . .	1,660.32	457,926.65

## LAWRENCE SCIENTIFIC SCHOOL FUNDS.

40,805.73	Professorship of Engineering, . . .	\$40,805.73	
61,536.43	Abbott Lawrence Fund, . . . . .	61,536.43	
50,375.00	James Lawrence " . . . . .	50,375.00	
30,686.85	John B. Barringer " . . . . .	30,686.85	
25,000.00	Arthur Rotch " . . . . .	25,000.00	
5,500.00	George A. Gardner " . . . . .	5,548.30	
5,018.22	Edith Rotch " . . . . .		
10,274.16	Hennen Jennings Scholarship, .	10,345.74	
	Stuart Wadsworth Wheeler Fund, . . . . .	5,018.44	229,316.49

## MUSEUM OF COMPARATIVE ZOOLOGY FUNDS.

14,639.36	Museum of Comparative Zoölogy (bal.),	\$23,193.04	
50,000.00	Gray Fund for Zoölogical Museum,	50,000.00	
297,933.10	Agassiz Memorial Fund, } . . .	297,933.10	
7,594.01	Teachers' and Pupils' " } . . .	7,594.01	
117,469.34	Permanent Fund, . . . . .	117,469.34	
7,740.66	Humboldt " . . . . .	7,740.66	
	Henry L. Pierce Fund, . . . . .	100,000.00	
5,483.81	Virginia Barret Gibbs Sch., . . .	5,485.53	
109,000.65	Sturgis Hooper Fund, . . . . .	107,793.29	717,208.97

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY  
AND ETHNOLOGY FUNDS.

729.46	Peabody Museum (balance), . . .		
47,403.92	Peabody Professor Fund, . . . . .	\$47,504.46	
47,335.10	Peabody Collection " . . . . .	47,335.10	
28,355.56	Peabody Building " . . . . .	28,355.56	
10,248.49	Huntington Frothingham Wol- cott Fund, . . . . .	10,059.00	

\$6,983,035.24 . . . Amounts carried forward, . . . . .	\$133,254.12	\$7,617,872.46
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Principal, Aug. 1, 1898.		Principal, July 31, 1899.
\$6,983,035.24	. . . Amounts brought forward, . . .	\$133,254.12 \$7,617,872.46
	Henry C. Warren Exploration Fund, . . . . .	10,189.02
30,122.11	Thaw Fellowship Fund, . . . . .	30,153.79
11,030.70	Hemenway Fellowship Fund, . . . . .	11,137.02
5,247.78	Robert C. Winthrop Scholarship, . . . . .	5,222.00 189,955.95

## MEDICAL SCHOOL FUNDS.

73,756.32	Medical School (balance), . . . . .	\$55,481.26
19,192.65	Jackson Medical Fund, . . . . .	19,192.65
17,129.20	Geo. C. Shattuck " . . . . .	17,129.20
100,252.40	George Fabyan " . . . . .	100,593.99
52,900.33	William O. Moseley Fund, . . . . .	52,900.33
2,011.39	John B. & Buckminster Brown Professorship, . . . . .	17,780.96
13,554.84	Warren F'd for Anatom'l Museum, . . . . .	13,547.81
3,369.45	Boylston Fund for Medical Prizes, . . . . .	3,480.34
3,448.41	Boylston " " " Books, . . . . .	3,357.24
1,400.97	Medical Library Fund, . . . . .	1,465.28
2,000.00	Quincy Tufts Medical Fund, . . . . .	2,000.00
25,512.68	Edward M. Barringer " . . . . .	25,512.68
15,765.11	Mary W. Swett " . . . . .	15,765.11
20,000.00	Samuel W. Swett " . . . . .	20,000.00
1,836.08	Samuel E. Fitz " . . . . .	1,836.08
6,074.95	J. Ingersoll Bowditch " . . . . .	6,000.00
9,335.94	Dr. Ruppaner Fund, . . . . .	9,335.94
32,540.57	Henry Willard Williams Fund, . . . . .	32,784.20
	Calvin Ellis Fund, . . . . .	242,337.01
	Edward Austin Fund (Bacterio- logical Laboratory), . . . . .	8,597.53
	Caroline Brewer Croft Fund, . . . . .	92,276.76
5,000.00	Surgical Laboratory Fund, . . . . .	6,439.05
38,750.00	New Subscription Fund (1888), . . . . .	38,750.00
145.82	John Foster income for Medical Students (balance), . . . . .	5.82
5,672.07	D. W. Cheever Scholarship, . . . . .	5,682.41
6,157.66	C. M. Jones " . . . . .	6,190.37
6,183.30	Isaac Sweetser " . . . . .	6,217.10
4,122.64	Charles Pratt Strong Scholars'p, . . . . .	4,211.89
5,116.49	Alfred Hosmer Linder " . . . . .	5,151.31
5,369.37	Charles B. Porter " . . . . .	5,415.81
	John Thompson Taylor Scholar- ship, . . . . .	5,076.52
5,130.94	Edward Wigglesworth Scholarship, . . . . .	5,246.45
5,239.36	Geo. Cheyne Shattuck Memorial Fellowship, . . . . .	5,254.83
5,205.20	John Ware Memorial Fellowship, . . . . .	5,219.11
\$7,521,609.97	. . . Amounts carried forward, . . .	\$840,235.04 \$7,807,828.41

Principal, Aug. 1, 1898.		Principal, July 31, 1899.
\$7,521,609.97	. . Amounts brought forward, . . .	\$840,235.04 \$7,807,828.41
5,486.20	<b>Chas. Eliot Ware</b> memorial Fellowship, . . . . .	5,513.01
5,614.52	<b>William H. Thorndike</b> Prize F'd, School of Comparative Medicine, . .	5,672.25 2,007.67
1,592.34	Gifts for Pathological Dep't Library, " Departments, . . . . .	4,644.67 842.96
		858,915.60

## DENTAL SCHOOL FUNDS.

22,599.74	Dental School (balance), . . . . .	\$28,397.36	
15,255.85	Dental School Endowment, . . . .	25,255.85	
16,039.54	Gifts for Building, . . . . .	16,790.14	70,443.35

## OBSERVATORY FUNDS.

1,191.56	Observatory (balance), . . . . .		
110,293.88	<b>Edward B. Phillips</b> Fund, . . .	\$110,293.88	
21,000.00	<b>James Hayward</b> " . . .	21,000.00	
33,305.53	<b>David Sears</b> " . . .	34,069.91	
10,229.93	<b>Josiah Quincy</b> " . . .	10,699.48	
2,000.00	<b>Charlotte Harris</b> " . . .	2,000.00	
5,000.00	<b>Thomas G. Appleton</b> Fund, . .	5,000.00	
13,380.00	<b>Augustus Story</b> " . .	13,380.00	
50,000.00	Observatory Endowment (1882), . .	50,000.00	
273,557.86	<b>Robert Treat Paine</b> Fund, . . .	273,557.86	
50,000.00	<b>Paine</b> Professorship, . . . . .	50,000.00	
206,621.45	<b>Uriah A. Boyden</b> Fund, . . . .	204,706.71	
45,000.00	<b>Haven</b> Fund, . . . . .	45,000.00	
94.66	<b>Bruce</b> Gift (balance), . . . . .	94.66	
2,500.00	<b>J. Ingersoll Bowditch</b> Fund, . .	2,500.00	
1,524.43	<b>Draper Memorial</b> (balance), . .	2,028.70	824,331.20

## BUSSEY INSTITUTION FUNDS.

15,195.68	<b>Bussey</b> Institution (balance), . . .	\$17,627.99	
3,946.33	<b>Woodland Hill</b> Fund, . . . . .	12,250.14	29,878.13

## ARNOLD ARBORETUM FUNDS.

333.20	<b>Arnold</b> Arboretum (balance), . .		
157,852.15	<b>James Arnold</b> Fund, . . . . .	\$158,214.42	
1,287.24	Arboretum Construction Gifts, . . .	15,270.65	
	<b>Arnold</b> Arboretum Fund, . . . .	13,500.00	
20,655.50	<b>William L. Bradley</b> Fund, . . .	21,424.77	208,409.84

## OTHER FUNDS FOR SPECIAL PURPOSES.

392,709.18	<b>Bussey</b> Trust (income thereof, $\frac{1}{2}$ to <b>Bussey</b> Institution, $\frac{1}{4}$ to Law Sch'l, and $\frac{1}{4}$ to Divinity School), . . . .	\$392,709.18	
50,000.00	<b>Bright</b> Legacy, . . . . .	50,000.00	
\$9,055,876.74	. . Amounts carried forward, . . .	\$442,709.18	\$9,799,806.53

Principal, Aug. 1, 1898.		Principal, July 31, 1899.
\$9,055,876.74	. . Amounts brought forward, . . .	\$442,709.18 \$9,799,806.53
44,257.03	Robert Troup Paine Fund, . .	45,558.64
42,000.00	James Savage " . .	42,000.00
3,171.50	John Foster " . .	3,171.50
29,939.33	Henry Harris " . .	29,939.33
2,000.00	John L. Russell " . .	2,000.00
16,828.61	Gray Fund for Engravings, . .	16,453.01
31,759.16	John Witt Randall Fund, . .	32,288.75
15,191.19	William M. Prichard Fund, . .	15,338.45
1,208.74	Harvard Memorial Society Fund, .	1,264.23
5,517.97	Gospel Church " .	5,771.25
1,080.00	Fund of the Class of 1834, . . .	1,120.00
6,534.35	" " " 1844, . . .	6,644.35
	" " " 1851, . . .	509.73
	" " " 1851 (anon.),	501.93
3,725.00	" " " 1853, . . .	3,725.00
	Free Bed Fund of Class of 1868,	3,475.32
719,868.31	Price Greenleaf Fund, . . . . .	719,091.31
5,346.87	O. W. Doe Scholarship, . . . . .	5,385.64
5,718.68	Lewis and Harriet Hayden Sch.,	5,767.15
5,085.71	Anonymous Annuity Fund, . . . . .	5,119.16
	Henry L. Pierce Building Fund,	176,575.06
	Gift for New Boat House, . . . . .	20,028.49
	Stillman Infirmary Gift, . . . . .	46,714.62
	Semitic Building Gifts, . . . . .	16,291.95
14,579.35	Gifts for the Improvement of The Soldier's Field, . . . . .	8,913.50
	Gift for Pathological Laboratory (Veterinary School), . . . . .	5,064.11
78,068.21	Charles L. Hancock Fund, . .	77,667.71
33,002.38	Bursar's Sundry Accounts, . . . . .	49,849.10
87,633.45	Gains and Losses for General Invest- ments, . . . . .	157,572.36
1,341.72	Sundry Balances, . . . . .	1,946,510.83

FUNDS IN TRUST FOR PURPOSES NOT  
CONNECTED WITH THE COLLEGE.

16,451.05	Daniel Williams Fund for the conversion of the Indians, . . . . .	\$16,356.83
4,774.77	Sarah Winslow Fund for the Minister and Teacher at Tyngs- borough, Mass., . . . . .	4,784.87 21,141.20
<hr/> \$10,230,960.12		<hr/> \$11,767,458.56



*Changes in the Funds during the year ending July 31, 1899.*

Total amount of Funds and balances, July 31, 1899,	
as before stated, . . . . .	\$11,767,458.56
Total amount of Funds and balances, August 1, 1898,	
as before stated, . . . . .	10,230,960.12
Showing a total increase during the year of . . . .	<u>\$1,536,498.44</u>

Which is made up as follows :—

Gifts forming new Funds or increasing old ones, . .	\$1,383,460.77
Increase of Funds established during the year, . .	13,517.42
Credit balances created, . . . . .	374,759.58
Gain from change of investments, . . . . .	80,075.91
	<u>\$1,851,813.68</u>

Deduct from this amount

Decrease more than increase of Funds		
and balances, which appear both at		
the beginning and end of the year, \$243,438.13		
Loss from change of investment, . . . .	10,914.00	
Sundry balances used up, . . . . .	15,614.16	
Decrease of Stock Account, by excess of		
expenditures over income in College,		
Library, and University accounts, . .	45,348.95	315,315.24
	<u></u>	<u>\$1,536,498.44</u>

Net increase of Funds and balances as above, . . .	\$468,352.91
Less decrease as above, . . . . .	<u>315,315.24</u>

Leaving amount of the net increase of the Funds	
and balances, excluding gifts for capital ac-	
count, as is also shown in the following table, .	<u>\$153,037.67</u>

*Statement showing Changes in the Different Funds*

**Increase** of Funds and balances which appear both at the beginning and the end of the year, being the excess of income (including gifts for immediate use) over payments towards the special objects of those Funds.

## UNIVERSITY.

Henry L. Pierce Fund, . . . . .	\$2,024.37
President's Fund, . . . . .	130.26
Thomas Cotton Fund, . . . . .	.30
Retiring Allowance Fund, . . . . .	10,975.26
John W. and Belinda L. Randall Fund, . . . . .	111.20
Robert Treat Paine Fellowship, . . . . .	305.71
John Thornton Kirkland Fellowship, . . . . .	213.83
James Walker Fellowship, . . . . .	18.17
Henry Lee Memorial Fellowship, . . . . .	65.32
Whiting Fellowships, . . . . .	177.17
H. B. Rogers Memorial Fellowship, . . . . .	59.95
John Tyndall Scholarship, . . . . .	29.41
Francis H. Cummings Scholarship, . . . . .	231.61
William Hilton Scholarships, . . . . .	219.44
Frank Bolles Memorial Fund, . . . . .	37.20
Ralph Hamilton Shepard Memorial Fund, . . . . .	253.14
George B. Sohler Prize Fund, . . . . .	304.50
Sumner " " . . . . .	131.69
John O. Sargent " " . . . . .	8.74
Robert N. Toppan " " . . . . .	9.55
James Gordon Bennett Prize Fund, . . . . .	17.93
Lectures on Political Economy Fund, . . . . .	411.91
William Belden Noble Lectures, . . . . .	508.43
	<hr/> \$16,245.09

## COLLEGE.

Asa Gray Professorship of Systematic Botany, . . . . .	\$941.41
Gurney Fund, . . . . .	2,733.71
Paul Dudley Fund for Lectures, . . . . .	46.51
John W. P. Abbot Fund, . . . . .	342.14
Daniel H. Pierce " . . . . .	63.36
Scholarship and Beneficiary money returned (balance), . . . . .	404.03
Henry Flynt's Bequest, . . . . .	.71
Abbot Scholarship, . . . . .	13.04
Alford " . . . . .	72.29
Bigelow " . . . . .	74.16
Borden " . . . . .	84.13
Bright " (balance), . . . . .	254.16
Browne " . . . . .	19.33
Morey Willard Buckminster Scholarship, . . . . .	30.33
Burr Scholarship, . . . . .	186.95
Class of 1802 Scholarship, . . . . .	63.07
" 1814 " . . . . .	58.03

Amounts carried forward, . . . . . \$5,387.36 \$16,245.09

*and balances during the year ending July 31, 1899.*

**Decrease** of Funds and balances which appear both at the beginning and the end of the year, being the excess of payments over income received (including gifts for immediate use) for the special objects of those Funds.

#### UNIVERSITY.

Henry L. Pierce Bequest (transferred to other accounts), . . . . .	\$275,000.00	
William Hayes Fogg Fund, . . . . .	4,071.99	
J. W. and Belinda L. Randall Construction Fund, . . . . .	47,874.08	
Gifts for Phillips Brooks House, . . . . .	4,575.31	
John Parker Fellowships, . . . . .	71.31	
Harris " . . . . .	242.39	
Rogers " . . . . .	380.36	
Joseph Eveleth Fund, . . . . .	23.71	
Ingersoll Lecture Fund, . . . . .	39.96	
Gifts for Semitic Collection, . . . . .	399.00	
" " Library, . . . . .	150.48	\$332,828.59

#### COLLEGE.

Bartlett Scholarship, . . . . .	\$3.56	
Bassett " . . . . .	66.81	
Bowditch " . . . . .	197.98	
Ruluff S. Choate Scholarship, . . . . .	19.05	
Class of 1828 " . . . . .	40.36	
" 1841 " . . . . .	12.45	
W. S. Eliot " . . . . .	79.15	
Matthews Scholarship (balance), . . . . .	2,147.62	
Pennoyer Scholarship, . . . . .	174.38	
Henry B. Rogers Scholarship, . . . . .	42.29	
Sever " . . . . .	1.56	
Slade " . . . . .	59.32	
Story " . . . . .	3.41	
Unknown Memorial Fund, . . . . .	712.97	
Boylston Prizes for Elocution, . . . . .	78.06	
Herbarium Fund, . . . . .	3,782.02	
Henry Warren Torrey Fund, . . . . .	91.88	
Cyrus M. Warren " . . . . .	7.31	
Sundry Gifts (unexpended balances), . . . . .	470.68	
Gifts for Sanskrit Department, . . . . .	118.32	
Gifts for College Salaries, . . . . .	1,700.00	9,809.18

#### LIBRARY.

Waterston Gift (balance), . . . . .	30.63
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#### DIVINITY SCHOOL.

Abner W. Buttrick Fund, . . . . .	41.33
Amount carried forward, . . . . .	\$342,709.73

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward, . . . . .		\$5,387.36	\$16,245.09
Class of 1815 Scholarship, (Kirkland), . . . . .		84.17	
"    1817    "    . . . . .		47.00	
"    1835    "    . . . . .		14.58	
"    1852    "    (Dana), . . . . .		26.51	
"    1867    "    . . . . .		57.33	
Crowninshield    "    . . . . .		119.86	
George and Martha Derby Scholarship, . . . . .		35.79	
Julius Dexter Scholarship, . . . . .		18.77	
Fall River    "    . . . . .		14.46	
Farrar    "    . . . . .		28.66	
Richard Augustine Gambrill Scholarship, . . . . .		99.11	
Benjamin D. Greene Scholarship, . . . . .		34.98	
Ebenezer Rockwood Hoar Scholarship, . . . . .		70.65	
Levina Hoar Scholarship, . . . . .		30.08	
Hodges    "    . . . . .		366.73	
Hollis    "    . . . . .		70.44	
G. E. Lowell    "    . . . . .		2.84	
Merrick    "    . . . . .		125.03	
Morey    "    . . . . .		160.68	
Lady Mowlson    "    . . . . .		52.04	
Howard Gardner Nichols Scholarship, . . . . .		45.15	
Lucy Osgood Scholarship, . . . . .		200.90	
Perkins    "    . . . . .		37.36	
Wendell Phillips Memorial Scholarship, . . . . .		15.22	
Rodger Scholarship, . . . . .		57.83	
Edward Russell Scholarship, . . . . .		48.73	
Sales    "    . . . . .		10.43	
Saltonstall    "    . . . . .		53.02	
Leverett Saltonstall    "    . . . . .		31.89	
Mary Saltonstall    "    . . . . .		61.80	
Sewall    "    . . . . .		79.01	
Shattuck    "    . . . . .		103.25	
Stoughton    "    . . . . .		215.21	
Thayer    "    . . . . .		462.15	
Gorham Thomas    "    . . . . .		33.69	
Toppan    "    . . . . .		35.39	
Townsend    "    . . . . .		51.77	
Walcott    "    . . . . .		64.08	
Whiting    "    . . . . .		105.68	
Palfrey Exhibition, . . . . .		9.96	
Henry B. Humphrey Fund, . . . . .		5.94	
William Brattle    "    . . . . .		8.60	
Henry Gibbs    "    . . . . .		16.07	
Ephraim Flynt    "    . . . . .		15.47	

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Amounts carried forward, . . . . . \$8,665.67 \$16,245.09



and balances during the year ending July 31, 1899. (Continued.)

### DECREASE.

Amount brought forward, . . . . . \$342,709.73

#### MUSEUM OF COMPARATIVE ZOÖLOGY.

**Sturgis Hooper** Fund, . . . . . 1,207.36

#### PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

**Huntington Frothingham Wolcott** Fund, . . . \$189.49

**Robert C. Winthrop** Scholarship, . . . . . 25.78      215.27

#### MEDICAL SCHOOL.

Medical School (balance), . . . . . \$18,275.06

**Warren** Fund for Anatomical Museum, . . . . . 7.03

**Boylston** Fund for Medical Books, . . . . . 91.17

**J. Ingersoll Bowditch** Fund, . . . . . 74.95

**John Foster** income for Medical Students (balance),      140.00      18,588.21

#### OBSERVATORY.

**Uriah A. Boyden** Fund, . . . . . 1,914.74

#### OTHER FUNDS FOR SPECIAL PURPOSES.

**Gray** Fund for Engravings, . . . . . \$375.60

Gifts for the Improvement of Soldier's Field, . . . . . 5,665.85

**Charles L. Hancock** Fund, . . . . . 400.50      6,441.95

#### FUNDS IN TRUST FOR PURPOSES NOT CONNECTED WITH THE COLLEGE.

**Daniel Williams** Fund, . . . . . 94.22

\$371,171.48

#### Sundry balances used up.

Gift for greenhouses at the Botanic Garden, . . . . . \$7,000.00

**Edith Rotch** Fund, . . . . . 5,018.22

**Peabody** Museum of American Archaeology and

Ethnology (balance), . . . . . 729.46

Observatory (balance), . . . . . 1,191.56

**Arnold** Arboretum (balance), . . . . . 333.20

Sundry Balances, . . . . . 1,341.72      15,614.16

#### Loss from change of Investments.

**Price Greenleaf** Fund, . . . . . 10,914.00

Decrease of Stock Account by excess of expenditures over income,  
in College, Library, and University Accounts, . . . . . 45,348.95

Amount carried forward, . . . . . \$443,048.59

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward, . . . . .	\$8,665.67	\$16,245.09
Thomas Danforth Fund, . . . . .	35.85	
Anne Mills " . . . . .	7.53	
Thomas Fitch " . . . . .	26.90	
Benjamin Wadsworth " . . . . .	9.68	
John Ellery " . . . . .	14.32	
Henry Flynt Fund, . . . . .	5.37	
Joseph Sewall " . . . . .	7.16	
Nathaniel Appleton Fund, . . . . .	20.06	
Edward Holyoke " . . . . .	12.90	
Mary Lindall " . . . . .	35.25	
Samuel Ward " . . . . .	25.00	
John Glover " . . . . .	106.44	
Dr. A. P. Peabody Memorial Fund, . . . . .	35.98	
Price Greenleaf Aid (balance), . . . . .	211.00	
Bowdoin Prizes for Dissertations, . . . . .	330.09	
Sales Prize, . . . . .	3.15	
Hopkins Gift for "Deturs" (balance), . . . . .	36.69	
John E. Thayer Fund, . . . . .	95.66	
Classical Publication Fund of the Class of 1856, . . . . .	24.97	
Elizabeth Torrey Bequest, . . . . .	46.11	
Francis James Child Memorial Fund, . . . . .	.97	
Joseph Lovering Fund, . . . . .	310.73	
George William Sawin Fund, . . . . .	84.02	
Gifts for Classical Library (balance), . . . . .	129.23	
Gifts for Historical Library (balance), . . . . .	371.61	
Chauncey Wright Fund, . . . . .	41.68	10,744.02

**LIBRARY.**

Constantius Fund, . . . . .	\$56.50
Subscription for Library (1859), . . . . .	97.23
Bowditch Fund, . . . . .	30.10
Bright Fund (balance), . . . . .	103.56
Edwin Conant Fund, . . . . .	16.48
Denny Fund, . . . . .	65.95
Farrar " . . . . .	26.20
Haven " . . . . .	22.62
Hayes " . . . . .	135.44
Hayward " . . . . .	42.35
Hollis " . . . . .	4.57
Homer " . . . . .	26.31
Lane " . . . . .	16.62
Lowell " . . . . .	421.40
Minot " . . . . .	516.47
Lucy Osgood Fund, . . . . .	95.36

Amounts carried forward, . . . . . \$1,677.16 \$26,989.11

*and balances during the year ending July 31, 1899. (Continued.)*

**DECREASE.**

Amount brought forward, . . . . . \$443,048.59 .

Amount carried forward, . . . . . \$443,048.59

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward, . . . . .	\$1,677.16	\$26,989.11
Mary Osgood Fund, . . . . .	87.91	
Sales " . . . . .	40.53	
Salisbury " . . . . .	28.61	
Sever " . . . . .	79.44	
Shapleigh " . . . . .	31.90	
Sumner " . . . . .	167.67	
Tucker " . . . . .	82.23	
Ward " . . . . .	68.67	
Walker " . . . . .	72.99	
J. Huntington Wolcott Fund, . . . . .	111.72	
Sundry Gifts (unexpended balances), . . . . .	68.18	2,517.01

**DIVINITY SCHOOL.**

Divinity School (balance), . . . . .	\$214.19	
Winn Professorship of Ecclesiastical History, . . . .	500.00	
Frothingham Professorship, . . . . .	1,855.60	
John W. Quinby Fund, . . . . .	86.61	
Louisa J. Hall " . . . . .	26.94	
Rushton Dashwood Burr Fund, . . . . .	133.75	
Jackson Foundation, . . . . .	73.34	
Thomas Cary Scholarship, . . . . .	39.78	
George Chapman " . . . . .	19.80	
Joshua Clapp " . . . . .	18.98	
J. Henry Kendall " . . . . .	29.09	
Nancy Kendall " . . . . .	14.22	
Beneficiary Money Returned, . . . . .	326.67	3,338.97

**LAW SCHOOL.**

Law School (balance), . . . . .	\$27,194.11	
Bemis Professorship, . . . . .	10.72	
Scholarship money returned, . . . . .	72.84	27,277.67

**LAWRENCE SCIENTIFIC SCHOOL.**

George A. Gardner Fund, . . . . .	\$48.30	
Hennen Jennings Scholarship, . . . . .	71.58	119.88

**MUSEUM OF COMPARATIVE ZOÖLOGY.**

Museum of Comparative Zoölogy (balance), . . . . .	\$8,553.68	
Virginia Barret Gibbs Scholarship, . . . . .	1.72	8,555.40
Amount carried forward, . . . . .		\$68,798.04



*and balances during the year ending July 31, 1899. (Continued.)*

**DECREASE.**

Amount brought forward, . . . . . \$443,048.59

Amount carried forward, . . . . . \$443,048.59

*Statement showing Changes in the Different Funds***INCREASE.**

Amount brought forward, . . . . . \$68,798.04

**PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY  
AND ETHNOLOGY.**

Peabody Professor Fund, . . . . .	\$100.54	
Thaw Fund, . . . . .	31.68	
Hemenway Fellowship, . . . . .	106.32	238.54

**MEDICAL SCHOOL.**

George Fabyan Fund, . . . . .	\$341.59	
John B. and Buckminster Brown Professorship, . . . . .	416.45	
Boylston Fund for Medical Prizes, . . . . .	110.89	
Medical Library Fund, . . . . .	64.31	
Surgical Laboratory Fund, . . . . .	439.05	
Henry Willard Williams Fund, . . . . .	243.63	
D. W. Cheever Scholarship, . . . . .	10.34	
C. M. Jones " . . . . .	32.71	
Isaac Sweetser " . . . . .	33.80	
Charles Pratt Strong Scholarship, . . . . .	89.25	
Alfred Hosmer Linder " . . . . .	34.82	
Charles B. Porter " . . . . .	46.44	
Edward Wigglesworth " . . . . .	115.51	
George Cheyne Shattuck Memorial Fellowship, . . . . .	15.47	
John Ware Memorial Fellowship, . . . . .	13.91	
Charles Eliot Ware Memorial Fellowship, . . . . .	26.81	
William H. Thorndike Prize Fund, . . . . .	57.73	
Gifts for Pathological Department Library, . . . . .	3,052.33	5,145.04

**DENTAL SCHOOL.**

Dental School (balance), . . . . .	\$5,797.62	
Gifts for Building, . . . . .	750.60	6,548.22

**OBSERVATORY.**

David Sears Fund, . . . . .	\$764.38	
Josiah Quincy Fund, . . . . .	469.55	
Draper Memorial (balance), . . . . .	504.27	1,738.20

**BUSSEY INSTITUTION.**

Bussey Institution (balance), . . . . .	\$2,432.31	
Woodland Hill Fund, . . . . .	8,303.81	10,736.12

Amount carried forward, . . . . . \$93,204.16

*and balances during the year ending July 31, 1899. (Continued.)*

**DECREASE.**

Amount brought forward, . . . . . \$443,048.59

Amount carried forward, . . . . . \$443,048.59

*Statement showing Changes in the Different Funds***INCREASE.**

Amount brought forward, . . . . . \$93,204.16

**ARNOLD ARBORETUM.**

<b>James Arnold Fund,</b> . . . . .	\$362.27	
<b>William L. Bradley Fund,</b> . . . . .	769.27	
<b>Arboretum Construction Gifts,</b> . . . . .	13,983.41	15,114.95

**OTHER FUNDS FOR SPECIAL PURPOSES.**

<b>Robert Troup Paine Fund,</b> . . . . .	\$1,301.61	
<b>John Witt Randall</b> " . . . . .	529.59	
<b>William M. Prichard</b> " . . . . .	147.26	
<b>Harvard Memorial Society</b> " . . . . .	55.49	
<b>Gospel Church</b> " . . . . .	253.28	
<b>Fund of the Class of 1834,</b> . . . . .	40.00	
" " <b>Class of 1844,</b> . . . . .	110.00	
<b>O. W. Doe Scholarship,</b> . . . . .	38.77	
<b>Lewis and Harriet Hayden Scholarship,</b> . . . . .	48.47	
<b>Anonymous Annuity Fund,</b> . . . . .	33.45	
<b>Bursar's Sundry Accounts,</b> . . . . .	16,846.72	19,404.64

**FUDNS IN TRUST FOR PURPOSES NOT  
CONNECTED WITH THE COLLEGE.**

<b>Sarah Winslow Fund,</b> . . . . .	9.60
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**Increase of Funds established during the year.**

<b>Edward Austin Fund,</b> . . . . .	\$4,876.87
<b>Alexander Wheelock Thayer Fund,</b> . . . . .	34.42
<b>Calvin Ellis Aid Fund,</b> . . . . .	19.10
<b>Swift Scholarship,</b> . . . . .	24.88
<b>Christopher M. Weld Scholarship,</b> . . . . .	91.80
<b>Harvard Oriental Series Fund,</b> . . . . .	283.53
<b>Professorship of Hygiene,</b> . . . . .	3,751.30
<b>Caroline Brewer Croft Fund,</b> . . . . .	251.76
<b>Jacob Wendell Fund,</b> . . . . .	143.44
<b>Asa Gray Memorial Fund,</b> . . . . .	347.14
<b>Henry C. Warren</b> " . . . . .	2,058.55
<b>Josiah Stickney</b> " . . . . .	252.45
<b>Coolidge Debating Prizes,</b> . . . . .	76.52
<b>Susan B. Lyman Fund,</b> . . . . .	28.69
<b>Architecture Building Endowment Fund,</b> . . . . .	382.48
<b>Kenneth Matheson Taylor</b> " . . . . .	37.53
<b>James Barr Ames Prize Fund,</b> . . . . .	270.00

Amounts carried forward, . . . . . \$12,930.46 \$127,733.35



*and balances during the year ending July 31, 1899. (Continued).*

**DECREASE.**

Amount brought forward, . . . . . \$443,048.59

Amount carried forward, . . . . . \$443,048.59

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward, . . . . .	\$12,930.46	\$127,733.35
<b>Stuart Wadsworth Wheeler Fund</b> , . . . . .	18.44	
<b>Henry C. Warren Exploration Fund</b> , . . . . .	189.02	
<b>John Thompson Taylor Scholarship</b> , . . . . .	76.52	
<b>Calvin Ellis Fund</b> , . . . . .	103.31	
School of Comparative Medicine Fund, . . . . .	7.67	
<b>Edward Austin Fund (Bacteriological Lab.)</b> , . . . . .	97.53	
Fund of the <b>Class of 1851</b> , . . . . .	1.93	
“ “ <b>1851 (anonymous)</b> , . . . . .	1.93	
Free Bed Fund of the <b>Class of 1868</b> , . . . . .	90.61	13,517.42

## Credit balances created.

<b>Jefferson Physical Laboratory (balance)</b> , . . . . .	\$1,950.35	
<b>J. Randolph Coolidge Gift</b> , . . . . .	2,063.40	
<b>Henry L. Pierce Fund (Mus. Comp. Zoölogy)</b> , . . . . .	100,000.00	
Gifts for Departments in the Medical School, . . . . .	842.96	
Gift for cases at the Botanic Garden, . . . . .	3,000.00	
<b>Edwin F. Atkins Gift</b> , . . . . .	500.00	
<b>Henry L. Pierce Building Fund</b> , . . . . .	176,575.06	
Gift for Pathological Laboratory (Veterinary School), . . . . .	5,064.11	
Gift for New Boat House, . . . . .	20,028.49	
Gifts for Collections for a Germanic Museum, . . . . .	1,728.64	
<b>Stillman Infirmary Fund</b> , . . . . .	46,714.62	
<b>Semitic Building Fund</b> , . . . . .	16,291.95	374,759.58

## Gain from change of Investments.

<b>Price Greenleaf Fund</b> , . . . . .	\$10,137.00	
Gains and Losses for General Investments, . . . . .	69,938.91	80,075.91

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Total, . . . . . \$596,086.26

*and balances during the year ending July 31, 1899. (Continued.)*

**DECREASE.**

Amount brought forward, . . . . . \$443,048.59

Balance, which is the net increase of the Funds and balances for the year ending July 31, 1899, excluding gifts for capital account, . . . . .	153,037.67
Total, . . . . .	\$596,086.26

The following tables are not found, in their present form, in the Treasurer's books. They are intended to exhibit with some detail the resources and the expenditures of each department of the University. The income of every Fund held by the University is given in these tables, and also the sum paid out for the specific object of each and every Fund, in case that sum be either less or more than the actual income of the Fund. If the object to which the income of a Fund is to be applied be a general one, — like salaries, for example, — no separate mention is made in these tables of that appropriation. That particular payment is merged with others of the same kind under the general heading. A balanced summary of these tables will be found on page 102.

TABLE NO. I.  
THE UNIVERSITY.

RECEIPTS.

Income of the unappropriated fund heretofore called the Stock Account,		
From special investment, . . . . .	\$1,216.55	
Income of the following Funds:—		
Insurance and Guaranty, from special investment,	2,353.75	
Israel Munson, . . . . .	722.93	
Leonard Jarvis, . . . . .	774.42	
John C. Gray, from special investment, . . . .	415.46	
George B. Dorr, " " . . . .	1,927.12	
Francis E. Parker, " " . . . .	1,891.41	
Stanton Blake, . . . . .	229.50	
Charlotte F. Blanchard, . . . . .	218.99	
Joseph Lee, from special investment, . . . . .	166.19	
William F. Weld,		
From general investments, . . . . .	\$4,079.45	
" special " . . . . .	184.84	4,264.29
Henry P. Kidder, . . . . .	459.00	
George Draper, . . . . .	2,224.22	
Isaac Sweetser, . . . . .	2,153.31	
George Baxter Hyde, . . . . .	229.50	
Harvard Ellis, . . . . .	4,661.78	
John W. Carter, . . . . .	573.75	
Theodore Lyman, . . . . .	459.00	
Henry L. Pierce Residuary Bequest (part), . .	22,139.68	
Andrew Bigelow, . . . . .	170.38	
Gore, . . . . .	944.21	
Samuel D. Bradford, . . . . .	240.97	
John Cowdin, from special investment, . . . .	2,045.56	
John L. Russell . . . . .	1,072.68	
Henry T. Morgan, . . . . .	3,761.55	
Henry Harris, $\frac{1}{2}$ income, . . . . .	687.10	
Seth Turner, . . . . .	229.50	
William Perkins, . . . . .	1,377.00	
Amount carried forward, . . . . .	\$57,609.80	



TABLE NO. I, THE UNIVERSITY, CONTINUED.

## RECEIPTS.

Amount brought forward, . . . . .	\$57,609.80	
Income of the following funds ( <i>continued</i> ):—		
<b>Walter Hastings</b> , from special investment, . . .	1,081.96	
President's, . . . . .	2,909.97	
<b>Thomas Cotton</b> , . . . . .	7.07	
Retiring Allowance, . . . . .	15,225.26	
Lectures on Political Economy, . . . . .	411.91	
<b>Ingersoll</b> Lecture, . . . . .	251.44	
<b>William Belden Noble</b> Lectures, . . . . .	907.99	
<b>William Hayes Fogg</b> ,		
Interest, . . . . .	\$2,397.82	
Sales, &c., . . . . .	46.93	2,444.75
<b>William M. Prichard</b> , . . . . .	697.26	
<b>John W. and Belinda L. Randall</b> , . . . . .	236.20	
<b>Parker</b> Fellowships, . . . . .	2,553.69	
<b>John Thornton Kirkland</b> Fellowship, . . . . .	488.83	
<b>Harris</b> Fellowship, . . . . .	507.61	
<b>James Walker</b> Fellowship, . . . . .	518.17	
<b>Rogers</b> Fellowships, . . . . .	1,494.64	
<b>Robert Treat Paine</b> Fellowship, . . . . .	555.71	
<b>John Tyndall</b> Scholarship, . . . . .	529.41	
<b>Henry Lee</b> Memorial Fellowship, . . . . .	515.32	
<b>Ozias Goodwin</b> " " . . . . .	484.20	
<b>Henry Bromfield Rogers</b> Memorial Fellowship, . . . . .	509.95	
<b>Whiting</b> Fellowships, . . . . .	977.17	
<b>Ricardo</b> Fellowship, Gift, . . . . .	350.00	
<b>Francis Hathaway Cummings</b> Scholarship, . . . . .	231.61	
<b>William Hilton</b> Scholarships, . . . . .	219.44	
<b>Frank Bolles</b> Memorial, . . . . .	72.20	
<b>Edward Austin</b> , . . . . .	4,876.87	
<b>Alexander Wheelock Thayer</b> , . . . . .	34.42	
<b>Calvin Ellis</b> Aid, . . . . .	19.10	
<b>Sumner</b> Prize, . . . . .	131.69	
<b>George B. Sohier</b> Prize, . . . . .	250.00	
<b>John O. Sargent</b> Prize, . . . . .	108.74	
<b>James Gordon Bennett</b> Prize, . . . . .	57.93	
<b>Robert N. Toppan</b> Prize, . . . . .	159.55	
<b>Ralph Hamilton Shepard</b> Memorial, . . . . .	253.14	
Free Bed Fund of the <b>Class of 1868</b> , . . . . .	90.61	
Semitic Collection. Gifts, . . . . .	\$16,270.00	
Interest, . . . . .	147.10	16,417.10
Gifts for the improvement of The Soldier's Field.		
Interest, . . . . .	\$195.59	
Sale, . . . . .	50.00	245.59
		\$114,436.30
Amount carried forward, . . . . .		\$114,436.30

## TABLE NO. I, THE UNIVERSITY, CONTINUED.

## RECEIPTS.

Amount brought forward, . . . . .	\$114,436.30	
For immediate use.		
Gift for unrestricted use, . . . . .	\$150.00	
" Expenses in connection with the will of		
<b>Edward Austin</b> , . . . . .	2,300.00	
" <b>Atkins</b> Fellowship, . . . . .	2,000.00	
" Collections for a Germanic Museum, . . .	1,728.64	6,178.64
		<hr/>
Balance remaining after dividing the net income among		
the Funds, . . . . .	\$580.69	
Care of the <b>Sarah Winslow</b> Fund, . . . . .	5.48	
Sale of catalogues, calendars, directories, &c., . . . .	848.54	
" wood, . . . . .	11.50	
Use of houses by College officers, . . . . .	1,400.00	
" stable, 12 Quincy Street, . . . . .	30.00	
Examination fees for degrees of Ph.D., . . . . .	90.00	2,966.21
		<hr/>
		<u>\$123,581.15</u>

## PAYMENTS.

Overseers' Expenses.		
Advertising, . . . . .	\$271.00	
Printing President's Annual Report, . . . . .	1,280.07	
Printing Treasurer's " " . . . . .	303.79	
Printing other reports, . . . . .	92.53	
Stationery and postage, . . . . .	204.41	
Auditing Treasurer's accounts, . . . . .	125.00	
Sundries, . . . . .	4.24	\$2,281.04
		<hr/>
Office Expenses.		
President's,		
Clerical services, . . . . .	\$567.37	
Other expenses, . . . . .	314.07	\$881.44
Treasurer's,		
Clerical services, . . . . .	\$791.20	
Other expenses, . . . . .	976.26	1,767.46
Bursar's,		
Clerical services, . . . . .	\$2,849.99	
Other expenses, . . . . .	2,543.84	5,393.83
Publication Agent's,		
Clerical services, . . . . .	\$905.96	
Other expenses, . . . . .	1,153.50	2,059.46
Supt. of Buildings' and Janitor's, . . . . .	96.44	
Corporation Rooms (fuel, rent, &c.), . . . . .	2,536.76	12,735.39
		<hr/>
Amount carried forward, . . . . .		<u>\$15,016.43</u>

TABLE NO. I, THE UNIVERSITY, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .		\$15,016.43
<b>Salaries.</b>		
President,		
From the University, . . . . .	\$6,000.00	
" President's Fund, . . . . .	2,779.71	
" Thomas Cotton Fund, . . . . .	6.77	\$8,786.48
Treasurer, . . . . .	6,000.00	
Comptroller, . . . . .	5,000.00	
Bursar, . . . . .	4,000.00	
Assistant Bursar, . . . . .	2,000.00	
Corresponding Secretary, . . . . .	1,350.00	
Recording Secretary, . . . . .	1,750.00	
Secretary of the Board of Overseers, . . . . .	200.00	
Publication Agent, . . . . .	2,000.00	
Clerks, Treasurer's office, . . . . .	3,150.00	
Bursar's Assistant, . . . . .	1,700.00	
Superintendent of Buildings, . . . . .	2,400.00	38,336.48
Lectures, . . . . .		40.00
<b>Memorial Hall and Sanders Theatre.</b>		
Repairs, . . . . .	\$210.41	
Fuel, lighting, furniture, cleaning, &c., . . . . .	295.73	
Insurance, . . . . .	1,680.80	2,186.94
<b>General Expenses.</b>		
Repairs and improvements, . . . . .	\$428.37	
Janitors and cleaning, . . . . .	1,595.52	
Labor, . . . . .	4,886.83	
Fuel, . . . . .	1,031.75	
Water, . . . . .	338.03	
Lighting, . . . . .	241.55	
Printing, . . . . .	468.59	
Annual Catalogue and Calendar, . . . . .	3,048.26	
Graduate School Catalogue, . . . . .	275.43	
Catalogue of A.M., Ph.D., &c., . . . . .	618.23	
Guide Book, . . . . .	501.63	
Stationery and postage, . . . . .	530.49	
Advertising, . . . . .	1,236.43	
Insurance, . . . . .	42.00	
Taxes, . . . . .	1,143.49	
Watchmen, . . . . .	1,973.84	
Freight, diplomas, supplies, and sundries, . . . . .	675.86	
Legal services, . . . . .	25.00	
Music, Commencement, . . . . .	185.00	
Cleaning portraits, . . . . .	156.07	
Sidewalk assessments, . . . . .	442.83	
Amounts carried forward, . . . . .	\$19,845.20	\$55,579.85

TABLE NO. I, THE UNIVERSITY CONTINUED.

## PAYMENTS.

Amounts brought forward, . . . . .	\$19,845.20	\$55,579.85
Plank walks, . . . . .	85.63	
Mercantile agency, . . . . .	1,098.00	
Semitic Building expenses, . . . . .	193.84	
Receptions, . . . . .	1,127.50	
Repayment of interest, . . . . .	21.85	
Deficit in the School of Veterinary Medicine for 1898-99, . . . . .	3,521.01	25,893.03
<hr/>		
Sundry payments made from Special Funds and Gifts.		
William Hayes Fogg Fund.		
Collections and expenses, . . . . .	\$6,016.74	
Salary of Director, . . . . .	500.00	\$6,516.74
William M. Prichard Fund, . . . . .	550.00	
J. W. and Belinda L. Randall Fund, . . . .	125.00	
Semitic books and binding, . . . . .	150.48	
Semitic Collection, . . . . .	524.15	
Retiring Allowance Fund, . . . . .	4,250.00	
Ingersoll Lecture Fund, . . . . .	291.40	
Frank Bolles Memorial Fund, . . . . .	35.00	
William Belden Noble Fund, . . . . .	181.93	
Expenses connected with Edward Austin's will,	2,300.00	14,924.70
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Fellowships and Scholarships.		
Atkins, . . . . .	\$2,000.00	
Harris, . . . . .	750.00	
John Thornton Kirkland, . . . . .	275.00	
Henry Lee Memorial, . . . . .	450.00	
Morgan, . . . . .	2,000.00	
Robert Treat Paine, . . . . .	250.00	
John Parker, . . . . .	2,625.00	
Ricardo, . . . . .	350.00	
Rogers, . . . . .	1,875.00	
Henry Bromfield Rogers Memorial, . . . .	450.00	
John Tyndall, . . . . .	500.00	
James Walker, . . . . .	500.00	
Whiting, . . . . .	800.00	
University, . . . . .	2,950.00	15,775.00
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Prizes.		
James Gordon Bennett, . . . . .	\$40.00	
Robert N. Toppan, . . . . .	150.00	
John O. Sargent, . . . . .	100.00	290.00
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		\$112,462.58



TABLE No. II.  
THE COLLEGE.

## RECEIPTS.

From Term Bills.

Instruction, . . . . .	\$370,585.78	
Receipts from College dormitories, not included in		
University Houses and Lands, . . . . .	72,174.34	\$442,760.12

Income of Scholarship Funds.

Abbot, . . . . .	\$163.04
Alford (accumulating), . . . . .	72.29
Bartlett, . . . . .	246.44
Bassett, . . . . .	263.19
Bigelow, . . . . .	574.16
Samuel A. Borden (accumulating), . . . . .	84.13
Bowditch, . . . . .	5,135.38
Bright, $\frac{1}{2}$ income of Bright Legacy, . . . . .	1,147.50
Browne, . . . . .	169.33
Morey Willard Buckminster, . . . . .	230.33
Burr, . . . . .	1,453.61
Ruluff Sterling Choate, . . . . .	280.95
Class of 1802, . . . . .	363.07
"    1814, . . . . .	141.37
"    1815 (Kirkland), . . . . .	284.17
"    1817, . . . . .	197.00
"    1828, . . . . .	159.64
"    1835, . . . . .	214.58
"    1841, . . . . .	187.55
"    1852 (Dana), . . . . .	226.51
"    1856, from special investment, . . . . .	600.00
"    1867, . . . . .	207.33
Crowninshield, . . . . .	519.86
George and Martha Derby, . . . . .	252.45
Julius Dexter, . . . . .	218.77
Orlando W. Doe (part), . . . . .	100.00
William Samuel Eliot, . . . . .	254.19
Joseph Eveleth (part), . . . . .	1,066.66
Fall River, . . . . .	94.46
Farrar, . . . . .	278.66
Richard Augustine Gambrill, . . . . .	499.11
Charles Haven Goodwin. Interest, \$294.54	
Gift, . . . . .	<u>38.24</u>
Benjamin D. Greene, . . . . .	184.98
Price Greenleaf, . . . . .	3,000.00
William Hilton (part), . . . . .	450.00
Ebenezer Rockwood Hoar, . . . . .	470.65
Levina Hoar, for the town of Lincoln, . . . . .	280.08

Amounts carried forward, . . . . .	\$20,404.22	\$442,760.12
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TABLE NO. II, THE COLLEGE, CONTINUED.

## RECEIPTS.

Amounts brought forward, . . . . .		\$20,404.22	\$442,760.12
Income of Scholarship Funds ( <i>continued</i> ).			
Hodges, . . . . .		566.73	
Hollis, . . . . .		270.44	
Henry B. Humphrey, . . . . .		480.94	
Hennen Jennings, . . . . .		471.58	
George Emerson Lowell, . . . . .		229.50	
William Merrick, . . . . .		258.37	
Morey, . . . . .		360.68	
Lady Mowlson, . . . . .		252.04	
Howard Gardner Nichols, . . . . .		245.15	
Lucy Osgood (accumulating), . . . . .		200.90	
Pennoyer. Interest, . . . . .	\$92.76		
Annuity, . . . . .	52.86	145.62	
Perkins, . . . . .		187.36	
Wendell Phillips, . . . . .		65.22	
Rodger (accumulating), . . . . .		57.83	
Henry Bromfield Rogers, . . . . .		157.71	
Edward Russell, . . . . .		248.73	
Sales, . . . . .		243.77	
Saltonstall, . . . . .		203.02	
Leverett Saltonstall, . . . . .		231.89	
Mary Saltonstall, . . . . .		311.80	
Savage, . . . . .		300.00	
Sever, . . . . .		148.44	
Sewall, . . . . .		479.01	
Shattuck, . . . . .		2,203.25	
Slade, . . . . .		274.02	
Story, . . . . .		196.59	
Stoughton. Interest, . . . . .	\$40.21		
Special investment, . . . . .	175.00	215.21	
Swift, . . . . .		24.88	
Thayer, . . . . .		3,462.15	
Gorham Thomas, . . . . .		183.69	
Toppan, . . . . .		335.39	
Townsend, . . . . .		1,135.11	
Walcott, . . . . .		197.42	
Christopher M. Weld, . . . . .		91.80	
Jacob Wendell, . . . . .		143.44	
Whiting, . . . . .		505.68	35,489.58
<hr/>			
Received for the Warren H. Cudworth Scholarships, . . . . .	\$600.00		
"    "    George Emerson Lowell " . . . . .	200.00		
"    "    Matthews Scholarships ( $\frac{1}{2}$ net rents of			
Hall), . . . . .		2,352.38	3,152.38
<hr/>			
Amount carried forward, . . . . .			\$481,402.08

TABLE NO. II, THE COLLEGE, CONTINUED.

## RECEIPTS.

Amount brought forward, . . . . .	\$481,402.08	
Income of other Beneficiary Funds.		
"Exhibitions," . . . . .	\$61.18	
Palfrey Exhibition, . . . . .	89.96	
Robert Keyne, . . . . .	89.28	
William Brattle, . . . . .	57.19	
Henry Gibbs, . . . . .	16.07	
Ephraim Flynt, . . . . .	15.47	
Thomas Danforth, . . . . .	35.85	
Anne Mills, . . . . .	7.53	
Thomas Fitch, . . . . .	26.90	
Benjamin Wadsworth, . . . . .	9.68	
John Ellery, . . . . .	14.32	
Henry Flynt, . . . . .	5.37	
Joseph Sewall, . . . . .	7.16	
Nathaniel Appleton, . . . . .	20.06	
Edward Holyoke, . . . . .	12.90	
Mary Lindall, . . . . .	35.25	
John Glover (accumulating), . . . . .	106.44	
Quincy Tufts, . . . . .	512.01	
Moses Day, . . . . .	250.11	
Munroe, . . . . .	483.56	
Susan B. Lyman, . . . . .	28.69	
Samuel Ward, from special investment, . . . .	25.00	
Price Greenleaf Aid. Interest, . . \$15,153.64		
Loans repaid, . . . . .	75.00	15,228.64
Dr. Andrew P. Peabody Memorial, . . . . .	194.98	
Stuart Wadsworth Wheeler, . . . . .	143.44	
Scholarship and Beneficiary Money Returned.		
Returned by beneficiaries, . . . . .	1,436.03	18,913.07
Income of Prize Funds.		
Ward Nicholas Boylston Prizes for Elocution, . . .	\$176.94	
James Bowdoin Prizes for Dissertations, . . .	670.09	
Coolidge Debating Prizes. Interest, . . . \$76.52		
Gift, . . . . .	200.00	276.52
Edward Hopkins Gift for "Deturs."		
From Trustees, . . . . .	\$205.69	
Interest on unexpended balance, . . .	73.58	279.27
Sales, . . . . .	48.15	1,450.97
Income of Funds for Instruction.		
Alford Professorship, . . . . .	\$1,273.68	
Boylston " . . . . .	1,300.67	
Eliot " . . . . .	992.31	
Amounts carried forward, . . . . .	\$3,566.66	\$501,766.12

TABLE NO. II, THE COLLEGE, CONTINUED.

## RECEIPTS.

Amounts brought forward, . . . . .	\$3,566.66	\$501,766.12
Income of Funds for Instruction ( <i>continued</i> ).		
Eliot Professorship (Jon. Phillips' Gift), . . .	350.00	
Erving " . . . . .	160.65	
Fisher " . . . . .	1,651.99	
Asa Gray " . . . . .	941.41	
Hersey " $\frac{2}{3}$ income of the Fund, . . . . .	556.77	
Hollis " (Mathematics), . . . . .	171.99	
Hollis " (Divinity), . . . . .	1,584.38	
McLean " . . . . .	1,976.59	
Perkins " . . . . .	963.90	
Plummer " . . . . .	1,148.42	
Pope " . . . . .	2,409.75	
Professorship of Hygiene, . . . . .	4,801.30	
Rumford " . . . . .	2,590.64	
Smith " . . . . .	1,062.13	
Fund for Permanent Tutors, . . . . .	745.42	
Thos. Lee, for the Hersey Professorship, . . . .	998.05	
Thos. Lee, for Reading, . . . . .	725.08	
Class Subscription, . . . . .	6,896.61	
Henry Flynt, . . . . .	15.74	
Paul Dudley, . . . . .	146.51	
Professorship of Engineering, . . . . .	1,873.00	
Abbott Lawrence, . . . . .	2,824.50	
James Lawrence, . . . . .	2,312.21	
John B. Barringer, . . . . .	1,408.53	
Arthur Rotch, . . . . .	1,147.50	
Sturgis Hooper, . . . . .	4,000.00	
Gifts for salaries, . . . . .	1,000.00	48,029.73
Income of Jonathan Phillips unrestricted Fund, . .	\$1,445.85	
" " John A. Blanchard " " . .	48.19	
" " Daniel H. Pierce " " . .	633.60	
" " J. W. P. Abbot Fund (accumulating), . .	342.14	
" " John E. Thayer " . . . . .	702.68	
" " Fund for Religious Services, . . . . .	47.46	
" " Gurney Fund, . . . . .	8,733.71	
" " Classical Publication Fund of the Class of 1856, . . . . .	324.97	
" " Increase Sumner Wheeler Fund, . .	2,295.00	
" " Henry Warren Torrey Fund, . . . . .	466.34	
" " Elizabeth Torrey Bequest, . . . . .	49.57	
" " Joseph Lovering Fund for Physical Research, . . . . .	357.98	
" " Cyrus M. Warren Fund, . . . . .	274.48	
Amounts carried forward, . . . . .	\$15,721.97	\$549,795.85



TABLE NO. II, THE COLLEGE, CONTINUED.

## RECEIPTS.

Amounts brought forward, . . . . .	\$15,721.97	\$549,795.85
Income of <b>Chauncey Wright</b> Fund, . . . . .	41.68	
“ “ <b>George A. Gardner</b> “ . . . . .	251.53	
“ “ <b>Francis James Child</b> Memorial Fund, . . . . .	501.46	
“ “ <b>George W. Sawin</b> Fund, . . . . .	196.36	
“ “ Architecture Building Endowment Fund, . . . . .	382.48	
“ “ <b>Josiah Stickney</b> Fund, . . . . .	252.45	
“ “ Unknown Memorial Fund, . . . . .	4,590.00	
“ “ <b>Edith Rotch</b> Bequest, . . . . .	31.07	21,969.00
<hr/>		
<b>Hemenway</b> Gymnasium.		
For use of lockers, . . . . .	\$3,829.00	
“ “ by graduates, . . . . .	20.00	3,849.00
<hr/>		
<b>Jefferson</b> Physical Laboratory.		
Income from Endowment, . . . . .	\$3,442.50	
Interest on unexpended balance, . . . . .	51.13	
Repayment of Assistant's salary, . . . . .	1,113.52	4,607.15
<hr/>		
<b>Sanskrit</b> Department.		
Interest on unexpended balance, . . . . .	\$67.97	
Income of <b>Henry C. Warren</b> Fund, . . . . .	2,141.99	
“ “ Harvard Oriental Series Fund, . . . . .	283.53	
Sale of publications, . . . . .	86.73	2,580.22
<hr/>		
<b>Botanic</b> Garden and Botanic Museum.		
Income of Botanic Department Fund, . . . . .	\$1,855.98	
“ “ <b>Lowell</b> Fund, . . . . .	3,046.93	
“ “ <b>John L. Russell</b> Fund, . . . . .	22.95	
Use of house, . . . . .	700.00	
Gifts for present use, . . . . .	6,500.00	
“ Cases, . . . . .	3,000.00	15,125.86
<hr/>		
<b>Gray</b> Herbarium.		
Income of Herbarium Fund, . . . . .	\$1,098.75	
“ “ <b>Asa Gray</b> Memorial Fund, . . . . .	347.14	
“ “ <b>John L. Russell</b> Fund, . . . . .	68.85	
Received from <b>Asa Gray's</b> copyrights, . . . . .	1,602.04	
Sale of check lists, duplicate books, and index cards, . . . . .	33.33	
“ publications, . . . . .	183.45	3,333.56
<hr/>		
<b>Classical</b> Department.		
Sales of publications, . . . . .		286.90
<hr/>		
<b>Sundries.</b>		
For use of rooms by College Society, . . . . .	\$500.01	
Sale of tickets to Commencement Dinner, . . . . .	833.00	
<hr/>		
Amounts carried forward, . . . . .	\$1,333.01	\$601,547.54

TABLE NO. II, THE COLLEGE, CONTINUED.

## RECEIPTS.

Amounts brought forward, . . . . .	\$1,333.01	\$601,547.54
Sundries ( <i>continued</i> ).		
Sale of hymn books, . . . . .	28.34	
" publications, . . . . .	1,133.42	
" old examination papers, . . . . .	306.96	
Fees for admission and condition examinations, . .	2,777.00	
" Summer Courses, . . . . .	\$15,522.50	
Other receipts from Summer Courses, .	247.52	15,770.02
For use of camp at Martha's Vineyard, . . . . .	13.18	21,361.93
		<hr/>
Laboratory fees received.		
Chemistry, . . . . .	\$12,007.86	
Mineralogy, . . . . .	382.50	
Physics, . . . . .	2,977.50	
Philosophy, . . . . .	145.00	
Hygiene, . . . . .	430.00	
Engineering, . . . . .	562.50	
Botany, . . . . .	822.50	
Zoölogy, . . . . .	872.50	
Geology, . . . . .	1,032.50	
Mining and Metallurgy, . . . . .	141.92	\$19,374.28
		<hr/>
Gifts for books for class-room libraries, . . . . .	344.66	
" Mathematical publications, . . . . .	300.00	
" Greek Department, . . . . .	250.00	
" the expenses of Appleton Chapel, . . . . .	5.00	20,273.94
		<hr/>
		<u>\$643,183.41</u>

## PAYMENTS.

Paid the incumbents of the following Scholarships.

Abbot, . . . . .	\$150.00
Bartlett, . . . . .	250.00
Bassett, . . . . .	330.00
Bigelow, . . . . .	500.00
Bowditch, . . . . .	5,333.36
Bright, . . . . .	893.34
Browne, . . . . .	150.00
Morey Willard Buckminster, . . . . .	200.00
Burr, . . . . .	1,266.66
Ruluff Sterling Choate, . . . . .	300.00
Class of 1802, . . . . .	300.00
" 1814, . . . . .	83.34
" 1815 (Kirkland), . . . . .	200.00
" 1817, . . . . .	150.00
" 1828, . . . . .	200.00
" 1835, . . . . .	200.00

Amount carried forward, . . . . . \$10,506.70

TABLE NO. II, THE COLLEGE, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$10,506.70
Paid the incumbents of the following Scholarships ( <i>cont'd</i> ).	
Class of 1841, . . . . .	200.00
"    1852 (Dana), . . . . .	200.00
"    1856, . . . . .	600.00
"    1867, . . . . .	150.00
Crowninshield, . . . . .	400.00
Warren H. Cudworth, . . . . .	600.00
George and Martha Derby, . . . . .	166.66
Julius Dexter, . . . . .	200.00
O. W. Doe, . . . . .	66.66
William Samuel Eliot, . . . . .	333.34
Joseph Eveleth, . . . . .	1,066.66
Fall River, . . . . .	80.00
Farrar, . . . . .	250.00
Richard Augustine Gambrill, . . . . .	400.00
Charles Haven Goodwin, . . . . .	300.00
Benjamin D. Greene, . . . . .	150.00
Price Greenleaf, . . . . .	3,000.00
Hilton, . . . . .	450.00
Ebenezer Rockwood Hoar, . . . . .	400.00
Levina Hoar, for the town of Lincoln, . . . . .	250.00
Hodges, . . . . .	200.00
Hollis, . . . . .	200.00
Henry B. Humphrey, . . . . .	475.00
Hennen Jennings, . . . . .	400.00
George Emerson Lowell, . . . . .	426.66
Matthews, . . . . .	4,500.00
William Merrick, . . . . .	133.34
Morey, . . . . .	200.00
Lady Mowlson, . . . . .	200.00
Howard Gardner Nichols, . . . . .	200.00
Pennoyer, . . . . .	320.00
Rebecca A. Perkins, . . . . .	150.00
Wendell Phillips Memorial, . . . . .	50.00
Henry Bromfield Rogers, . . . . .	200.00
Edward Russell, . . . . .	200.00
Sales, . . . . .	233.34
Saltonstall, . . . . .	150.00
Leverett Saltonstall, . . . . .	200.00
Mary Saltonstall, . . . . .	250.00
Savage, . . . . .	300.00
Sever, . . . . .	150.00
Sewall, . . . . .	400.00
Shattuck, . . . . .	2,100.00
Amount carried forward, . . . . .	\$31,408.36

## TABLE NO. II, THE COLLEGE, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$31,408.36	
Paid the incumbents of the following Scholarships ( <i>cont'd</i> ).		
Slade, . . . . .	333.34	
Story, . . . . .	200.00	
Thayer, . . . . .	3,000.00	
Gorham Thomas, . . . . .	150.00	
Toppan, . . . . .	300.00	
Townsend, . . . . .	1,083.34	
Walcott, . . . . .	133.34	
Whiting, . . . . .	400.00	\$37,008.38
Paid other Beneficiaries from the following Funds.		
Exhibitions, . . . . .	\$61.18	
Palfrey Exhibition, . . . . .	80.00	
Quincy Tufts, . . . . .	512.01	
Day, . . . . .	250.11	
Munroe, . . . . .	483.56	
Price Greenleaf Aid, . . . . .	15,017.64	
Robert Keyne, . . . . .	89.28	
William Brattle, . . . . .	48.59	
Dr. Andrew P. Peabody Memorial, . . . .	159.00	
Stuart Wadsworth Wheeler, . . . . .	125.00	
Scholarship and Beneficiary money returned, . . .	1,032.00	17,858.37
Prizes.		
Boylston Prizes for Elocution, . . . . .	\$255.00	
Bowdoin Prizes for Dissertations, . . . . .	290.00	
Coolidge Debating Prizes, . . . . .	200.00	
Sales, . . . . .	45.00	
"Deturs" from Hopkins Donation, . . . . .	242.58	1,032.58
Sundry payments made from Special Funds.		
John E. Thayer Fund, . . . . .	\$607.02	
Henry Warren Torrey Fund, . . . . .	558.22	
Elizabeth Torrey Bequest, . . . . .	3.46	
Cyrus M. Warren Fund, . . . . .	281.79	
George A. Gardner Fund, . . . . .	182.78	
The Joseph Lovering Fund for Physical Research, . . . . .	47.25	
Classical Publication Fund of the Class of 1856, .	300.00	
Francis James Child Memorial Fund, . . . .	510.86	
Unknown Memorial Fund, . . . . .	5,302.97	
George W. Sawin Fund, . . . . .	112.34	
Professorship of Hygiene, . . . . .	1,050.00	
John B. Barringer Fund (part), . . . . .	62.25	
Edith Rotch Fund, . . . . .	5,049.29	
Henry C. Warren Fund, . . . . .	83.44	14,151.67
Amount carried forward, . . . . .		\$70,051.00



## TABLE NO. II, THE COLLEGE, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .		\$70,051.00	
<b>Jefferson Physical Laboratory.</b>			
Spent on building and fixtures, . . . . .	\$16.89		
Laboratory expenses, . . . . .	\$3,187.11		
Less part paid by the College, . . . . .	600.00	2,587.11	2,604.00
<b>Botanic Garden and Botanic Museum.</b>			
Salaries, labor, repairs, materials, &c., . . . . .	\$18,463.21		
Interest on advances, . . . . .	640.56		19,103.77
<b>Gray Herbarium.</b>			
Salary, labor, repairs, materials, &c., . . . . .			7,849.62
<b>Hemenway Gymnasium.</b>			
Salaries and wages, . . . . .	\$7,482.46		
Janitors and cleaning, . . . . .	2,584.72		
Fuel, water, gas, printing, and sundries, . . . . .	2,139.65		
Repairs and improvements, . . . . .	746.75		
Apparatus, . . . . .	750.00		
Insurance, . . . . .	1,078.80	\$14,782.38	
Less amount received from other departments, . . . . .	2,002.07		12,780.31
<b>Appleton Chapel.</b>			
Preaching and morning services, . . . . .	\$3,253.75		
Organist and Choir-master, . . . . .	1,750.00		
Choir, . . . . .	1,600.00		
Music and binding, . . . . .	401.04		
Fuel, gas, cleaning, &c., . . . . .	883.49		
Services and wages, . . . . .	231.00		8,119.28
<b>Summer Schools.</b>			
Salaries, . . . . .	\$12,475.00		
Clerical services, . . . . .	400.00		
Supplies, materials, cleaning, &c., . . . . .	930.94		
Printing, . . . . .	865.87		
Advertising, . . . . .	309.58		
Instruments and apparatus, . . . . .	22.19		
Stationery and postage, . . . . .	436.63		15,440.21
<b>Paid from gifts for books for Political Economy Dept.,</b>			
" " " " French " "	\$59.91		
" " " " English " "	95.65		
" " " " Architectural " "	.97		
" " " " Social Questions, " "	9.73		
" " " " Classical Library, " "	10.05		
" " " " Historical " "	157.67		
" " " " Music, " "	112.59		
	7.87		454.44
Amount carried forward, . . . . .		\$136,402.63	

TABLE NO. II, THE COLLEGE, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$136,402.63	
Paid from gifts for illustrated lectures in Latin and Greek		
Departments, . . . . .	\$122.24	
" " Greek Department, . . . . .	500.00	
" " Harvard Oriental Series, . . . . .	273.02	
" " Cryptogamic Herbarium, . . . . .	424.65	1,319.91
Appropriations for collections, laboratories, &c.		
Physics (Prof. Trowbridge), . . . . .	\$1,000.00	
Chemistry (Prof. H. B. Hill), . . . . .	500.00	
Mineralogy (Prof. Wolff), . . . . .	800.00	
Petrography (Prof. Wolff), . . . . .	150.00	
Geology (Mr. Ward), . . . . .	550.00	
Mining and Metallurgy (Asst. Prof. Smyth), . . .	450.00	
Botany (Prof. Goodale), . . . . .	250.00	
Zoölogy (Dr. Parker), . . . . .	400.00	
Architecture (Asst. Prof. Warren), . . . . .	500.00	
Astronomy (Dr. Willson), . . . . .	310.00	
Zoölogy, for publications, . . . . .	400.00	
Psychology, Psychological Review, &c. (Prof. Münsterberg), . . . . .	400.00	
Fine Arts and Drawing (Prof. Moore), . . . . .	350.00	
Anthropology (Prof. F. W. Putnam), . . . . .	200.00	
Laboratory fees appropriated, . . . . .	18,811.78	
Fuel and services in Nat. Hist. Laboratories, . . .	1,500.00	
Fuel, services, &c., in Jefferson Ph. Laboratory, .	600.00	27,171.78
Salaries.		
Instruction, . . . . .	\$334,245.68	
Deans, . . . . .	4,500.00	
Chairmen of Committees, . . . . .	1,700.00	
Medical Visitor, Recorder, Secretary, Curator, &c.,	5,000.00	
Examination Proctors, . . . . .	1,775.00	347,220.68
Payments for College Buildings not valued in Treasurer's books.		
Shower baths and steam plant improvements, . . .	\$15,284.65	
Ventilation improvements, . . . . .	11,933.73	
Repairs, improvements, &c., . . . . .	10,648.92	
Cleaning and care, . . . . .	18,774.97	
Fuel, . . . . .	7,741.54	
Water, . . . . .	1,135.71	
Lighting, . . . . .	4,574.34	
Insurance, . . . . .	4,439.68	74,533.54
General Expenses.		
Deans and Chairmen of Committees, clerical and office expenses, . . . . .	\$10,302.05	
Commission on Admission to N. E. Colleges, . . .	155.43	
Amounts carried forward, . . . . .	\$10,457.48	\$586,648.54

TABLE NO. II, THE COLLEGE, CONTINUED.

## PAYMENTS.

Amounts brought forward, . . . . .	\$10,457.48	\$586,648.54
General Expenses ( <i>continued</i> ).		
Reading examination books, . . . . .	3,115.12	
Services of proctors, . . . . .	1,141.99	
" assistants to instructors, . . . . .	3,581.72	
" undergraduates, . . . . .	358.14	
" mechanics in department of Physiology and Hygiene, . . . . .	900.00	
" mechanics in department of Electrical Engineering, . . . . .	1,093.75	
" mechanics in department of Mechanical Engineering, . . . . .	1,530.66	
" Head Guide in College grounds, . . . .	44.20	
Expenses in History 13, . . . . .	304.43	
" of Medical Visitor, . . . . .	145.85	
Attendants in department libraries and laboratories,	3,927.29	
Admission examinations, . . . . .	2,312.07	
<b>Lawrence Scientific School Scholarships and assistance, . . . . .</b>	3,950.00	
Electric power, . . . . .	471.71	
Pews hired in Cambridge churches, . . . . .	1,767.50	
Commencement Dinner, . . . . .	649.34	
Printing office, expenses, . . . . .	\$18,957.49	
Less receipts, . . . . .	13,751.04	5,206.45
Printing, . . . . .	1,389.05	
Furniture, . . . . .	1,418.82	
Instruments and apparatus, . . . . .	1,848.81	
Stationery and postage, . . . . .	2,239.57	
Books, . . . . .	569.16	
Binding, . . . . .	195.15	
Advertising, . . . . .	1,667.72	
Watchmen, . . . . .	982.91	
Freight, diplomas, and sundries, . . . . .	1,445.38	
Supplies, tools, and materials, . . . . .	3,802.31	
Legal services, . . . . .	129.06	
Music, Class-Day, . . . . .	125.00	
Reception, . . . . .	16.25	
Use of Grays 18 by English department, . . . .	100.00	
Lantern slides, . . . . .	67.39	
Delegates' Expenses, . . . . .	30.35	
Services and expenses at Faculty meetings, . . . .	79.84	
Travelling expenses, L. S. S. courses, . . . . .	316.00	
Camp expenses at Martha's Vineyard, . . . . .	269.05	
Part of cost of French play in 1898, . . . . .	118.94	
Expenses on Annals of Mathematics, . . . . .	6.95	57,775.41
		<hr/>
		\$644,423.95

TABLE No. III.  
THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.

Subscription for Library (1859), . . . . .	\$482.68	
Nathaniel I. Bowditch, . . . . .	96.76	
Bright, $\frac{1}{2}$ income of the Bright Legacy, . . . .	1,147.50	
Edwin Conant, $\frac{1}{4}$ income, . . . . .	317.98	
Constantius, $\frac{1}{2}$ income, . . . . .	595.92	
Denny, . . . . .	241.80	
Eliza Farrar, . . . . .	240.79	
Horace A. Haven, . . . . .	143.53	
Francis B. Hayes, . . . . .	459.69	
George Hayward, . . . . .	241.11	
Thomas Hollis, . . . . .	108.83	
Sidney Homer, . . . . .	98.13	
Frederick A. Lane, . . . . .	242.21	
Lowell, . . . . .	1,131.66	
Charles Minot. Interest, . . . . .	\$2,759.60	
Sale, . . . . .	27.00	2,786.60
Lucy Osgood, . . . . .	325.94	
Mary Osgood, . . . . .	320.75	
Henry L. Pierce, . . . . .	4,590.00	
Francis Sales, . . . . .	182.09	
Stephen Salisbury, . . . . .	244.74	
Sever, . . . . .	920.02	
Samuel Shapleigh, . . . . .	181.81	
George B. Sohler (part), . . . . .	60.33	
Charles Sumner, . . . . .	1,716.57	
Kenneth Matheson Taylor, . . . . .	76.52	
Ichabod Tucker, from special investment, . . .	200.00	
James Walker, . . . . .	726.23	
Thomas W. Ward, . . . . .	241.71	
Executors of Robert Waterston, . . . . .	14.37	
J. Randolph Coolidge Gift, . . . . .	6.47	
J. Huntington Wolcott, . . . . .	461.20	\$18,603.94

Income of the following Funds for general expenses.

James Savage Fund ( $\frac{3}{4}$ income), . . . . .	\$1,220.85	
Edwin Conant " $\frac{3}{4}$ " . . . . .	953.95	
Constantius " $\frac{1}{2}$ " . . . . .	595.92	
Daniel Treadwell Fund, . . . . .	547.36	
Daniel Austin " . . . . .	285.96	
Eben Wright " . . . . .	4,590.00	
Jarvis " . . . . .	22.95	
Price Greenleaf " . . . . .	15,153.64	23,370.63

Amount carried forward, . . . . . \$41,974.57



TABLE NO. III, THE LIBRARY, CONTINUED.

## RECEIPTS.

Amount brought forward, . . . . .	\$41,974.57	
Fees for use of Library, . . . . .	\$115.00	
Sale of Scudder catalogues, . . . . .	8.00	
Sale of duplicate books, . . . . .	13.00	
Received for books lost, . . . . .	22.53	
Fines, . . . . .	289.52	
Gifts for books, . . . . .	3,641.68	4,089.73
		<u>\$46,064.30</u>

## PAYMENTS.

For Books, from	
Subscription Fund (1859), . . . . .	\$385.45
Bowditch " . . . . .	66.66
Bright " . . . . .	1,043.94
Conant " . . . . .	301.50
Constantius Fund, . . . . .	539.42
Denny " . . . . .	175.85
Farrar " . . . . .	206.73
Haven " . . . . .	120.91
Hayes " . . . . .	324.25
Hayward " . . . . .	198.76
Hollis " . . . . .	104.26
Homer " . . . . .	71.82
Lane " . . . . .	225.59
Lowell " . . . . .	710.26
Minot " . . . . .	2,270.13
Lucy Osgood " . . . . .	230.58
Mary Osgood " . . . . .	232.84
Pierce " . . . . .	2,565.63
Sales " . . . . .	141.56
Salisbury " . . . . .	216.13
Sever " . . . . .	840.58
Shapleigh " . . . . .	149.91
Sohier " . . . . .	5.83
Sumner " . . . . .	1,548.90
Taylor " . . . . .	38.99
Tucker " . . . . .	117.77
Walker " . . . . .	653.24
Ward " . . . . .	173.04
Waterston " . . . . .	45.00
J. Huntington Wolcott Fund, . . . . .	349.48
Coolidge Gifts, . . . . .	130.86
J. Randolph Coolidge Gift, . . . . .	943.07
Gardner Gift, . . . . .	159.65
Leob Gift, . . . . .	100.00
Amount carried forward, . . . . .	\$15,388.59

TABLE NO. III, THE LIBRARY, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$15,388.59	
For Books, from ( <i>continued</i> ).		
Dante Society Gift, . . . . .	33.75	
Duplicate money, . . . . .	184.77	
Fines, . . . . .	208.57	\$15,815.68
Salaries, . . . . .	\$15,000.00	
Services and wages, . . . . .	18,538.45	
Repairs and improvements, . . . . .	383.87	
Ventilation improvements, . . . . .	2,618.10	
Janitors and cleaning, . . . . .	798.19	
Fuel, . . . . .	1,036.76	
Water, . . . . .	35.88	
Lighting, . . . . .	1,176.96	
Printing, . . . . .	1,369.15	
Furniture, . . . . .	439.71	
Stationery and postage, . . . . .	564.91	
Binding, . . . . .	1,800.11	
Insurance, . . . . .	19.79	
Electric power, . . . . .	107.70	
Freight, supplies, and sundries, . . . . .	804.93	44,694.51
		<u>\$60,510.19</u>

TABLE NO. IV.

## DIVINITY SCHOOL.

## RECEIPTS.

Income of the following Funds applicable to Salaries.

Divinity School, balance, . . . . .	\$1,304.66
Benjamin Bussey Professorship, . . . . .	1,725.11
Parkman Professorship, . . . . .	735.13
John Hancock Professorship, . . . . .	\$275.77
C. L. Hancock. Interest, . . . . .	3,526.96
From special investments, . . . . .	577.72
Winn Professorship of Ecclesiastical History, . . . . .	2,402.68
Frothingham Professorship, . . . . .	1,855.60
Samuel Dexter, . . . . .	930.85
Henry Lienow, . . . . .	421.59
Mary P. Townsend, . . . . .	240.97
Winthrop Ward, . . . . .	96.39
Samuel Hoar, . . . . .	48.20
Abraham W. Fuller, . . . . .	48.20
Caroline Merriam, . . . . .	48.20

Amount carried forward, . . . . . \$14,238.03

TABLE NO. IV, DIVINITY SCHOOL, CONTINUED.

## RECEIPTS.

Amount brought forward, . . . . .	\$14,238.03	
Income of the following Funds applicable to Salaries ( <i>cont'd</i> ).		
Joseph Baker, . . . . .	361.46	
Thomas Tileston of New York Endowment, . .	1,836.00	
Henry P. Kidder, . . . . .	459.00	
Oliver Ames, . . . . .	780.30	
Abby Crocker Richmond, . . . . .	45.90	
New Endowment (1879), . . . . .	3,278.50	
William B. Spooner, . . . . .	459.00	\$21,458.19
Income of Scholarship and Beneficiary Funds.		
Jackson Foundation, . . . . .	\$660.00	
Thomas Cary, . . . . .	239.78	
George Chapman, . . . . .	119.80	
Joshua Clapp, . . . . .	198.98	
J. Henry Kendall, . . . . .	229.09	
Nancy Kendall, . . . . .	154.22	
William Pomroy, . . . . .	48.20	
Abner W. Buttrick, . . . . .	598.67	
Beneficiary money returned (balance), . . . . .	186.67	2,435.41
Income of other Funds.		
Joshua Clapp, . . . . .	\$99.97	
Hannah C. Andrews, . . . . .	24.10	
Lewis Gould, . . . . .	41.81	
Haven, . . . . .	229.50	
Daniel Austin, . . . . .	40.85	
Adams Ayer, . . . . .	45.90	
John W. Quinby, . . . . .	86.61	
John L. Russell, . . . . .	45.90	
Edwin Conant, . . . . .	229.50	
Louisa J. Hall, . . . . .	27.77	
Rushton Dashwood Burr, . . . . .	148.67	
Benjamin Bussey Trust ( $\frac{1}{4}$ net income for use of this School), . . . . .	4,021.62	5,042.20
Sale of duplicate books, &c., . . . . .	\$45.85	
" tickets to Alumni Dinner, . . . . .	34.00	
Term Bills.		
Instruction, . . . . .	\$5,117.54	
Receipts from Divinity Hall, . . . . .	2,866.89	7,984.43
Summer School fees, . . . . .		1,575.00
Gift from Society for Promoting Theological Education, . . . . .		2,088.60
Beneficiary money returned, . . . . .	140.00	11,867.88
		<u>\$40,803.68</u>

TABLE NO. IV, DIVINITY SCHOOL, CONTINUED.

## PAYMENTS.

Salaries for instruction, . . . . .	\$26,440.62	
Secretary and Librarian, . . . . .	1,750.00	
Services and wages, . . . . .	292.30	
Cataloguing, . . . . .	957.64	
Labor, repairs, and improvements, . . . . .	397.30	
Cleaning and care of rooms, . . . . .	1,401.57	
Fuel, . . . . .	463.10	
Water, . . . . .	74.00	
Lighting, . . . . .	230.37	
Printing, . . . . .	660.37	
Furniture, . . . . .	14.04	
Stationery and postage, . . . . .	363.56	
Books, . . . . .	592.47	
Binding, . . . . .	106.70	
Insurance, . . . . .	661.96	
Advertising, . . . . .	395.25	
Diplomas and sundries, . . . . .	371.43	
Taxes on Chelsea Real Estate, . . . . .	37.41	
Alumni dinner, . . . . .	81.00	
Proportion of expenses of Gymnasium, . . . . .	90.21	\$35,381.30
<hr/>		
Paid the incumbents of the following Scholarships :		
<b>Jackson</b> Foundation, . . . . .	\$586.66	
<b>Thomas Cary</b> , . . . . .	200.00	
<b>George Chapman</b> , . . . . .	100.00	
<b>Joshua Clapp</b> , . . . . .	180.00	
<b>J. Henry Kendall</b> , . . . . .	200.00	
<b>Nancy Kendall</b> , . . . . .	140.00	1,406.66
<hr/>		
Paid beneficiaries from the following Funds :		
<b>Abner W. Buttrick</b> , . . . . .	\$640.00	
<b>William Pomroy</b> , . . . . .	62.33	702.33
<hr/>		
Paid for Books from the following Funds :		
<b>Louisa J. Hall</b> , . . . . .	\$ .83	
<b>Rushton Dashwood Burr</b> , . . . . .	14.92	15.75
<hr/>		
		\$37,506.04



## TABLE No. V.

## LAW SCHOOL.

## RECEIPTS.

## Income of the following Funds.

Law School, balance, . . . . .	\$3,218.10	
<b>Nathan Dane</b> Professorship, . . . . .	722.93	
<b>Benjamin Bussey</b> " . . . . .	1,100.68	
<b>Isaac Royall</b> " . . . . .	382.85	
<b>Weld</b> " . . . . .	4,360.27	
<b>Bemis</b> " . . . . .	3,010.72	
<b>James Barr Ames</b> Prize,		
From special investment, . . . . .	\$120.00	
Gift, . . . . .	<u>150.00</u>	270.00
<b>John Foster</b> Fund, income for Law Students every		
second year, . . . . .	145.55	
Law School Book Fund, . . . . .	2,158.26	
Law School Library Fund, . . . . .	4,590.00	
<b>Benjamin Bussey</b> Trust ( $\frac{1}{4}$ net income for use		
of this School), . . . . .	4,021.62	
Scholarship money returned, . . . . .	72.84	\$24,053.82
<hr/>		
Term Bills, instruction, . . . . .		82,334.83
Gift for course of lectures on English Law in the Nineteenth Century,		600.00
Lost books, . . . . .		3.50
Commission on purchases of books, . . . . .		60.62
		<hr/>
		<u>\$107,052.77</u>

## PAYMENTS.

Salaries for instruction, . . . . .	\$49,900.00
Librarian and Assistants, . . . . .	4,959.28
Secretary, . . . . .	625.00
Reader to the <b>Dane</b> Professor, . . . . .	526.40
Services of proctors, . . . . .	357.00
Scholarships, . . . . .	2,600.00
Repairs and improvements, . . . . .	220.99
Janitor, cleaning, &c., . . . . .	1,435.70
Fuel, . . . . .	863.07
Water, . . . . .	101.20
Lighting, . . . . .	977.05
Printing, . . . . .	470.48
Furniture, . . . . .	550.09
Stationery and postage, . . . . .	394.52
Books, . . . . .	11,585.15
Binding, . . . . .	964.76
Advertising, . . . . .	95.00

Amount carried forward, . . . . \$76,625.69

TABLE NO. V, LAW SCHOOL, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$76,625.69	
Freight, diplomas, and sundries, . . . . .	554.94	
Proportion of expenses of Gymnasium, . . . . .	1,911.86	
Insurance, . . . . .	270.00	
Travelling expenses, . . . . .	47.61	
Electric power, . . . . .	50.00	
Legal services, . . . . .	45.00	\$79,505.10

TABLE NO. VI.

## MEDICAL SCHOOL.

## RECEIPTS.

Income of the following Funds.

Medical School, balance, . . . . .	\$3,885.40	
<b>Jackson</b> , . . . . .	880.96	
<b>Warren</b> , for Anatomical Museum,		
Interest, . . . . .	\$622.17	
Returned insurance premiums, . . . . .	365.02	987.19
<b>Ward Nicholas Boylston</b> , for Medical Prizes, . . . . .		154.64
<b>Ward Nicholas Boylston</b> , " " Books, . . . . .		158.26
<b>George C. Shattuck</b> , . . . . .		786.22
<b>George Fabyan</b> , interest, . . . . .	\$4,601.57	
Gift, . . . . .	25.00	4,626.57
<b>John B. and Buckminster Brown</b> , . . . . .		416.45
<b>Hersey</b> Professorship, $\frac{2}{3}$ income of the Fund, . . . . .		371.19
Medical Library, . . . . .		64.31
<b>Quincy Tufts</b> , . . . . .		91.80
<b>David Williams Cheever</b> Scholarship, . . . . .		260.34
<b>Isaac Sweetser</b> Scholarship, . . . . .		283.80
<b>O. W. Doe</b> " (part), . . . . .		100.00
<b>Joseph Eveleth</b> " " . . . . .		736.29
<b>C. M. Jones</b> " . . . . .		282.71
<b>Charles Pratt Strong</b> Scholarship, . . . . .		189.25
<b>Alfred Hosmer Linder</b> " . . . . .		234.82
<b>Lewis and Harriet Hayden</b> " . . . . .		262.50
<b>Edward Wigglesworth</b> " . . . . .		235.51
<b>Charles B. Porter</b> " . . . . .		246.44
<b>William Hilton</b> " (part), . . . . .		135.00
<b>John Thomson Taylor</b> " . . . . .		76.52
<b>George Cheyne Shattuck</b> Memorial Fellowship, . . . . .		240.47
<b>John Ware</b> " " . . . . .		238.91
<b>Charles Eliot Ware</b> " " . . . . .		251.81
<b>Edward M. Barringer</b> , . . . . .		1,171.05
Amount carried forward, . . . . .	\$16,868.41	

TABLE NO. VI, MEDICAL SCHOOL, CONTINUED.

## RECEIPTS.

Amount brought forward, . . . . .	\$16,868.41	
Income of the following Funds ( <i>continued</i> ).		
William H. Thorndike Prize, . . . . .	257.73	
Henry Harris, $\frac{1}{2}$ income, . . . . .	687.10	
Mary W. Swett, . . . . .	723.62	
Samuel W. Swett, . . . . .	918.00	
Samuel E. Fitz, . . . . .	84.27	
J. Ingersoll Bowditch, . . . . .	273.84	
New subscription (1888), . . . . .	1,773.63	
Surgical Laboratory, . . . . .	239.05	
William O. Moseley, . . . . .	2,428.11	
Dr. Ruppaner, . . . . .	428.52	
Calvin Ellis, . . . . .	103.31	
Henry Willard Williams, . . . . .	1,493.63	
Edward Austin (Bacteriological Laboratory), .	97.53	
Caroline Brewer Croft, . . . . .	352.01	
School of Comparative Medicine, . . . . .	7.67	
Gifts for Pathological Department Library, . . . .	50.61	
Ellis Gifts, . . . . .	29.33	\$26,826.37
Gifts for present use, . . . . .		8,650.00
Term Bills.		
Instruction, . . . . .	\$102,253.75	
Graduation fees, . . . . .	3,270.00	
Matriculation fees, . . . . .	780.00	
Examination fees and fines, . . . . .	450.00	
Fees for use of microscopes, . . . . .	244.50	
In Chemistry, breakage and chemicals, . . . . .	1,546.99	
In Physiology, material, . . . . .	298.00	
In Practical Anatomy, material, . . . . .	1,040.00	
In Operative Surgery, fees, . . . . .	291.00	
In Bandaging, fees, . . . . .	87.00	
In Embryology, " . . . . .	130.00	
In Histology, " . . . . .	2.50	110,393.74
From Dental School, for laboratory instruction, . . . .	\$5,200.00	
" Veterinary School, for laboratory instruction, . .	300.00	
Repayment of advances for the purchase of microscopes,	700.00	
Use of room by Harvard Coöperative Society, . . . . .	150.00	6,350.00
		<u>\$152,220.11</u>

## PAYMENTS.

Boylston Medical Prizes. Advertising, . . . . .	\$43.75
Warren Anatomical Museum.	
Expenses and additions to collection, . . . . .	994.22
Amount carried forward, . . . . .	<u>\$1,037.97</u>

TABLE NO. VI, MEDICAL SCHOOL, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$1,037.97	
<b>J. Ingersoll Bowditch Fund</b> , Physiological apparatus, &c., . .	374.52	
<b>George Fabyan Fund</b> , wages and expenses, . . . . .	284.98	
<b>Caroline Brewer Croft Fund</b> , expenses, . . . . .	100.25	
<b>Ellis Gifts</b> , Physiology and Pathological Bacteriology, . . . . .	286.00	
<b>Sear's Gifts</b> , books for Pathological Department, . . . . .	498.28	
Sundry gifts, . . . . .	1,407.04	
<b>Boylston Fund</b> for Books, books and binding, . . . . .	249.43	
<b>Edward M. Barringer Fund</b> (part), . . . . .	62.25	
<b>William H. Thorndike Prize</b> , . . . . .	200.00	
Faculty Scholarships, . . . . .	\$640.00	
<b>Edward M. Barringer Scholarship</b> No 1, . \$420.00		
"    "    "    "    "    2, . 200.00	620.00	
<b>David Williams Cheever Scholarship</b> , . . . . .	250.00	
<b>O. W. Doe Scholarship</b> , . . . . .	140.00	
<b>Joseph Eveleth Scholarships</b> , . . . . .	760.00	
<b>Lewis and Harriet Hayden Scholarship</b> , . . . . .	214.03	
<b>Hilton Scholarship</b> , . . . . .	135.00	
<b>C. M. Jones Scholarship</b> , . . . . .	250.00	
<b>Alfred Hosmer Linder Scholarship</b> , . . . . .	200.00	
<b>Charles B. Porter</b> " . . . . .	200.00	
<b>Charles Pratt Strong</b> " . . . . .	100.00	
<b>Isaac Sweetser</b> " . . . . .	250.00	
<b>Edward Wigglesworth</b> " . . . . .	120.00	
<b>George Cheyne Shattuck Memorial Fellowship</b> , . .	225.00	
<b>Charles Eliot Ware Memorial Fellowship</b> , . . . . .	225.00	
<b>John Ware Memorial Fellowship</b> , . . . . .	225.00	
Beneficiaries from <b>John Foster Income</b> , . . . . .	140.00	4,694.03
Chemistry, . . . . .	\$1,546.99	
Physiology, . . . . .	1,158.00	
Anatomy, . . . . .	1,900.00	
Pathology, . . . . .	800.00	
Bacteriology, . . . . .	861.50	
Obstetrics, . . . . .	150.00	
Histology and Embryology, . . . . .	1,305.00	
Hygiene, . . . . .	200.00	
Materia Medica — Pharmacology, . . . . .	700.00	
Clinical Medicine, . . . . .	425.00	
Appropriations for new courses, . . . . .	17,000.00	26,046.49
Graduates courses, fees repaid to Instructors, . . . . .	\$2,621.25	
Summer " " " " . . . . .	3,360.00	5,981.25
Salaries for instruction, . . . . .		93,349.00
Dental School, for laboratory instruction, . . . . .		580.00
Amount carried forward, . . . . .		\$135,151.49



TABLE NO. VI, MEDICAL SCHOOL, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .		\$135,151.49
General Expenses.		
Dean, and Secretary, . . . . .	\$800.00	
Repairs and improvements, . . . . .	2,747.99	
Janitor and cleaning, . . . . .	4,901.86	
Fuel, . . . . .	1,697.85	
Water, . . . . .	728.40	
Lighting and gas, . . . . .	2,633.99	
Printing, . . . . .	381.59	
Furniture, . . . . .	232.86	
Instruments and apparatus, . . . . .	624.41	
Stationery and postage, . . . . .	456.02	
Advertising and catalogues, . . . . .	1,800.00	
Insurance, . . . . .	179.00	
Proctors, . . . . .	511.00	
Reception, . . . . .	235.68	
Mechanics and laboratory attendants, . . . . .	7,578.00	
Legal services, . . . . .	55.50	
Electric motor, &c., . . . . .	461.85	
“ power, . . . . .	989.45	
Freight, diplomas, and sundries, . . . . .	548.48	
Supplies and material, . . . . .	1,604.08	29,168.01
		<u>\$164,319.50</u>

TABLE NO. VII.

## DENTAL SCHOOL.

## RECEIPTS.

Income of the following Funds.			
Dental School, balance, . . . . .	\$1,037.34		
Endowment, . . . . .	889.27		
Gifts for new building, interest, . . . . .	\$736.60		
gift, . . . . .	14.00	750.60	\$2,677.21
Term bills for instruction, . . . . .	\$22,624.30		
Fees from Laboratory, . . . . .	1,912.68		
In Chemistry, breakage and chemicals, . . . . .	381.20	24,918.18	
From Veterinary School, for laboratory instruction, . . . . .		140.00	
From Medical School, “ “ . . . . .		580.00	
Fees from Infirmary, . . . . .		5,808.87	
Gifts for present use, . . . . .		25.00	
Repayment of advances for the purchase of microscopes, . . . . .		385.00	
			<u>\$34,534.26</u>

TABLE NO. VII, DENTAL SCHOOL, CONTINUED.

## PAYMENTS.

Salaries for instruction, . . . . .	\$12,396.00	
Medical School, for instruction, . . . . .	5,200.00	
Curator, . . . . .	50.00	
Proctors, . . . . .	165.00	
Repairs and improvements, . . . . .	555.13	
Janitors and cleaning, . . . . .	1,381.30	
Fuel, . . . . .	167.18	
Water, . . . . .	77.00	
Lighting, . . . . .	270.60	
Printing, . . . . .	271.26	
Furniture, . . . . .	64.77	
Instruments and apparatus, . . . . .	96.24	
Stationery and postage, . . . . .	256.17	
Books, . . . . .	42.98	
Binding, . . . . .	99.86	
Advertising, . . . . .	418.88	
Services and wages, . . . . .	865.71	
Supplies, &c., . . . . .	4,323.04	
Freight, diplomas, and sundries, . . . . .	565.26	
Physiology, . . . . .	380.00	
Chemical apparatus, . . . . .	50.00	
Delegates expenses, . . . . .	84.66	
Insurance, . . . . .	180.00	
Clinics in Operative Surgery, . . . . .	25.00	\$27,986.04

TABLE NO. VIII.

## MUSEUM OF COMPARATIVE ZOÖLOGY.

## RECEIPTS.

## Income of the following Funds.

Museum of Comparative Zoölogy (balance), . . . . .	\$671.93	
<b>Gray</b> Fund for Zoölogical Museum, . . . . .	2,295.00	
<b>Agassiz</b> Memorial, . . . . .	13,675.13	
<b>Teachers and Pupils</b> , . . . . .	348.56	
<b>Humboldt</b> , . . . . .	355.31	
Permanent Fund for Museum of Zoölogy, . . . . .	5,391.83	
<b>Virginia Barret Gibbs</b> Scholarship, . . . . .	251.72	
<b>Sturgis Hooper</b> , . . . . .	4,819.54	
<b>Henry L. Pierce</b> , . . . . .	4,590.00	\$32,399.02

Use of Lecture Rooms by Radcliffe College, . . . . . 700.00

\$33,099.02

TABLE NO. VIII, MUSEUM OF COMPARATIVE ZOOLOGY, CONTINUED.

## PAYMENTS.

Paid on the order of the Faculty of the Museum of Comparative Zoölogy, from the following Funds.

Gray, . . . . .	\$2,295.00	
Agassiz Memorial, general expenses, . . . . .	11,083.38	
Teachers and Pupils, . . . . .	348.56	
Humboldt, . . . . .	355.31	
Permanent, . . . . .	5,391.83	\$19,474.08
Sturgis Hooper, salaries and expenses on account of Professorship of Geology, . . . . .	\$6,026.90	
Virginia Barret Gibbs Scholarship, . . . . .	250.00	6,276.90
		<u>\$25,750.98</u>

TABLE NO. IX.

## PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

## RECEIPTS.

Income of the following Funds.

Peabody Museum of American Archaeology and Ethnology (balance), . . . . .	\$33.46	
Peabody Professor,		
From general investments, . . . . .	\$1,290.52	
" special " . . . . .	1,038.84	2,329.36
Peabody Collection,		
From general investments, . . . . .	\$1,290.52	
" special " . . . . .	1,038.84	2,329.36
Peabody Building,		
From general investments, . . . . .	\$773.09	
" special " . . . . .	622.32	1,395.41
Huntington Frothingham Wolcott, . . . . .	459.00	
Henry C. Warren Exploration, . . . . .	189.02	
Thaw, from general investments, . . . . .	\$447.02	
" special " . . . . .	691.52	1,138.54
Hemenway, . . . . .	506.32	
Robert C. Winthrop Scholarship, . . . . .	240.88	\$8,621.35
Gifts for present use, . . . . .		1,592.34
Term bills for instruction, . . . . .		951.85
		<u>\$11,165.54</u>

## PAYMENTS.

Paid from the following Funds.

Peabody Professor, . . . . .	\$2,228.82
Peabody Collection, . . . . .	2,329.36
Peabody Building, . . . . .	1,395.41
Amount carried forward, . . . . .	<u>\$5,953.59</u>

TABLE NO. IX, PEABODY MUSEUM, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$5,953.59	
Paid from the following Funds ( <i>continued</i> ).		
Huntington Frothingham Wolcott, . . . . .	648.49	
Thaw, . . . . .	1,106.86	
Hemenway, . . . . .	400.00	
Robert C. Winthrop Scholarship, . . . . .	266.66	\$8,375.60
From fees for instruction, . . . . .		951.85
From gifts, &c., . . . . .		2,878.46
		<u>\$12,205.91</u>

TABLE NO. X.

## OBSERVATORY.

## RECEIPTS.

Income of the following Funds.

Balance, . . . . .	\$54.71	
Edward B. Phillips, . . . . .	5,062.49	
James Hayward, . . . . .	963.90	
Robert Treat Paine, . . . . .	12,556.31	
Paine Professorship of Practical Astronomy, . . . . .	2,295.00	
Uriah A. Boyden, . . . . .	9,483.90	
Augustus Story, . . . . .	614.14	
David Sears, . . . . .	1,528.75	
Josiah Quincy, . . . . .	469.55	
James Savage ( $\frac{1}{4}$ net income), . . . . .	406.95	
Charlotte Harris, . . . . .	91.80	
Thomas G. Appleton, . . . . .	229.50	
J. Ingersoll Bowditch, . . . . .	114.75	
Haven, . . . . .	2,065.50	
New Endowment (1882), . . . . .	2,295.00	\$38,232.25
Sale of Observatory publications, . . . . .	\$11.03	
" lantern slides, . . . . .	23.00	34.03
Mrs. Henry Draper, gift for special research (ad- ditional), . . . . .	\$9,999.96	
Interest on unexpended balance, . . . . .	69.95	10,069.91
Use of house by College officer, . . . . .		600.00
		<u>\$48,936.19</u>



TABLE NO. X, OBSERVATORY, CONTINUED.

## PAYMENTS.

From <b>Uriah A. Boyden</b> Fund, supplies, apparatus, services, &c.,	\$11,398.64	
“ <b>Draper</b> Memorial, supplies, apparatus, services, &c., . . .	9,565.64	
Salaries, . . . . .	\$11,800.00	
Services and wages, . . . . .	7,288.47	
Repairs and improvements on buildings and grounds, . .	3,118.56	
Cleaning and care of Observatory, . . . . .	553.20	
Fuel, . . . . .	289.68	
Water, . . . . .	49.06	
Lighting, . . . . .	30.08	
Printing, . . . . .	1,211.55	
Furniture, . . . . .	122.93	
Instruments and apparatus, including repairs on same, .	996.25	
Stationery, postage, and telegraphing, . . . . .	791.62	
Books, . . . . .	303.46	
Binding, . . . . .	173.55	
Supplies and materials, . . . . .	947.13	
Freight, chemicals, and sundries, . . . . .	264.55	
Use of house, . . . . .	90.00	
Electric power, . . . . .	101.26	
Legal services, . . . . .	50.00	
Cases, . . . . .	749.94	
Insurance, . . . . .	591.00	29,522.29
		<u>\$50,486.57</u>

TABLE NO. XI.

## BUSSEY INSTITUTION.

## RECEIPTS.

Interest on unexpended balance, . . . . .	\$697.50	
<b>Bussey</b> Trust ( $\frac{1}{2}$ net income), . . . . .	8,043.24	
Woodland Hill Fund, . . . . .	440.36	
Fees for instruction, . . . . .	1,055.00	
Sale of wood, hay, and sundries, . . . . .	194.10	
Horticultural Department, prizes, sale of flowers, plants, &c.,	2,296.22	
Board of horses, cattle, &c., . . . . .	4,696.02	
Use of house by College officer, . . . . .	600.00	<u>\$18,022.44</u>

## PAYMENTS.

Salaries, . . . . .	\$6,400.00
Services and wages, . . . . .	2,780.72
Repairs and improvements, . . . . .	1,338.36
Fuel, . . . . .	224.75
Gas, . . . . .	74.51

Amount carried forward, . . . . . \$10,818.34

TABLE NO. XI, BUSSEY INSTITUTION, CONTINUED.

## PAYMENTS.

Amount brought forward, . . . . .	\$10,818.34	
Water, . . . . .	20.00	
Printing, . . . . .	108.50	
Books, . . . . .	220.91	
Binding, . . . . .	5.95	
Advertising, . . . . .	175.50	
Insurance, . . . . .	619.50	
Horticultural Department, expenses, . . . . .	2,467.10	
Grain, farming tools, &c., . . . . .	1,116.09	
Sundries, . . . . .	38.24	\$15,590.13

## James Arnold Fund.

*Receipts.*

Income of Fund, . . . . .	\$7,245.40
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*Payments.*

19/20 income carried to Arnold Arboretum, . . . . .	\$6,883.13
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## Arnold Arboretum.

*Receipts.*

Interest on balance, . . . . .	\$15.28	
Income of <b>James Arnold Fund</b> , . . . . .	6,883.13	
" <b>William L. Bradley Fund</b> , . . . . .	948.06	
Income of <b>Arnold Arboretum Fund</b> , . . . . .	21.99	
Gifts for construction account, . . . . .	\$15,000.00	
Interest, . . . . .	56.27	15,056.27
Interest on deposit, . . . . .	7.14	
Sale of grass and materials, . . . . .	564.24	
Gifts for present use, . . . . .	2,500.00	\$25,996.11

*Payments.*

<b>William L. Bradley Fund</b> , . . . . .	\$178.79	
Salary of Director and Assistant, . . . . .	3,500.00	
Expenses of Arboretum, services, labor, &c., . . . . .	7,883.83	
Specimens and expenses for Herbarium and Museum, . . . . .	508.76	
Books, . . . . .	5.25	\$11,576.63

TABLE NO. XII.

## SCHOOL OF VETERINARY MEDICINE.

## RECEIPTS.

Term bills, for instruction, . . . . .	\$3,597.70		
Fees for use of microscopes, . . . . .	51.00		\$3,648.70
Fees from Hospital and Forge, . . . . .	\$12,991.18		
Interest on deposit with New England Trust Co., . . .	11.56		
Gifts for Charity Hospital, . . . . .	543.00		
Subscriptions to Hospital, . . . . .	800.00		
Fees from Free Clinic, . . . . .	247.40		
Insurance premiums returned, . . . . .	33.55		
Gift for Pathological Laboratory, . . . . .	\$5,000.00		
Interest, . . . . .	64.11	5,064.11	19,690.80
			<u>\$23,339.50</u>

## PAYMENTS.

Salaries for instruction, . . . . .	\$5,673.33		
Medical School, " . . . . .	330.00		
Dental School, " . . . . .	140.00		
Clerk, . . . . .	350.00		
Services and wages, . . . . .	5,439.78		
Proctors, . . . . .	21.00		
Scholarships, . . . . .	210.00		
Repairs and improvements, . . . . .	220.37		
Fuel, . . . . .	308.28		
Water, . . . . .	153.70		
Lighting, . . . . .	377.12		
Printing, . . . . .	149.72		
Furniture, . . . . .	20.66		
Instruments and apparatus, . . . . .	100.73		
Stationery, postage, telephone, &c., . . . . .	545.48		
Advertising, . . . . .	362.29		
Taxes, . . . . .	291.77		
Insurance, . . . . .	139.40		
Hay, grain, supplies, &c., . . . . .	3,729.48		
Freight, diplomas, and sundries, . . . . .	393.61		
Interest on advances, . . . . .	1,220.30		
Rent, . . . . .	1,480.00		
Free Clinic expenses, . . . . .	139.38		\$21,796.40

TABLE No. XIII.  
MISCELLANEOUS FUNDS.

**Bussey Trust.**

*Receipts.*

Net income from Real Estate, . . . . . \$20,088.98

*Payments.*

Annuities, . . . . .	\$4,000.00	
Expenses on <b>Bussey</b> busts, . . . . .	2.50	
One-half of the remaining income to <b>Bussey</b> Institution, . . . . .	8,043.24	
One-quarter " " Divinity School, . . . . .	4,021.62	
" " " " Law School, . . . . .	4,021.62	\$20,088.98

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**Price Greenleaf Fund.**

*Receipts.*

Income of Fund, . . . . . \$33,307.28

*Payments.*

Scholarships, . . . . .	\$3,000.00	
Beneficiary money transferred to College account, . . . . .	15,153.64	
Balance of income for Library expenses, . . . . .	15,153.64	\$33,307.28

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**Gray Fund for Engravings.**

*Receipts.*

Income of Fund, . . . . . \$772.45

*Payments.*

Salary of Curator, . . . . .	\$250.00	
Expenses and additions to collection, . . . . .	898.05	\$1,148.05

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**Woodland Hill Fund.**

*Receipts.*

Income of Fund, . . . . . \$440.36

*Payments.*

Taxes, . . . . .	\$579.36	
Legal services, . . . . .	221.64	
<b>Bussey</b> Institution, income transferred, . . . . .	440.36	\$1,241.36

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TABLE NO. XIII, MISCELLANEOUS FUNDS, CONTINUED.

**Daniel Williams Fund.***Receipts.*

Income of Fund, . . . . .		\$755.10
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*Payments.*

Treasurer of Mashpee Indians, . . . . .	\$480.70	
“ “ Herring Pond Indians, . . . . .	368.62	\$849.32

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**Sarah Winslow Fund.***Receipts.*

Income of Fund, . . . . .		\$219.17
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*Payments.*

Minister at Tyngsborough, Mass., . . . . .	\$102.05	
Teacher at “ “ . . . . .	102.04	
Commission on income, credited to University, . . . .	5.48	\$209.57

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**Class Funds.***Receipts.*

Class of 1834, income, from special investment, . . .	\$40.00	
“ 1844, “ “ “ “ . . .	260.00	
“ 1851, “ “ “ “ . . .	1.93	
“ 1851 (anonymous), income, from special investment, . . . . .	1.93	
“ 1853, income, from investment, . . . . .	149.00	\$452.86

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*Payments.*

To Secretary of the Class of 1844, . . . . .	\$150.00	
“ “ “ “ “ 1853, . . . . .	149.00	\$299.00

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**John Witt Randall Fund.***Receipts.*

Income of Fund, . . . . .		\$1,457.74
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*Payments.*

Salary of Curator and expenses, . . . . .		\$928.15
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TABLE NO. XIII, MISCELLANEOUS FUNDS, CONTINUED.

**Construction Accounts.***Receipts*

<b>J. W. and Belinda L. Randall</b> , Interest, . . . . .	\$893.33	
<b>Henry L. Pierce</b> , Interest, . . . . .	1,687.49	
<b>Stillman</b> Infirmary, Gift, . . . . .	\$50,000.00	
Interest, . . . . .	568.92	50,568.92
Gift for <b>Phillips Brooks</b> House, . . . . .	\$5,050.00	
Interest, . . . . .	374.69	5,424.69
Gift for New Boat House, . . . . .	\$20,000.00	
Interest, . . . . .	28.49	20,028.49
		<u>\$78,602.92</u>

*Payments.*

From <b>J. W. and Belinda L. Randall</b> Fund, . . .	\$48,767.41	
“ <b>Henry L. Pierce</b> , Fund, . . . . .	112.43	
“ <b>Stillman</b> Infirmary Gift, . . . . .	3,854.30	
“ Gifts for <b>Phillips Brooks</b> House, . . . . .	10,000.00	
“ “ the improvement of The Soldier's Field, . . . . .	5,911.44	\$68,645.58

**Sundry Accounts.***Receipts.*

<b>Gospel Church</b> Fund (accumulating),	
Interest on Fund, . . . . .	\$253.28
<b>Robert Troup Paine</b> Fund (accumulating),	
From special investment, . . . . .	1,301.61
<b>O. W. Doe</b> Scholarship Fund,	
Part of interest on Fund, . . . . .	45.43
Harvard Memorial Society Fund, interest, . . . . .	55.49
Anonymous Fund, interest, . . . . .	233.45
Gains and Losses for General Investments, gain on sale of Nos. 413 and 415 Washington St., . . . . .	69,938.91
Advances to Engineering Department, from General Investments, . . . . .	6.00
“ Department Libraries, from General Invest- ments, . . . . .	4.00
“ Botanic Department, from General Invest- ments, . . . . .	477.91
“ <b>Gray</b> Herbarium, from General Investment, . . . . .	1,081.18
“ <b>J. Ingersoll Bowditch</b> Fund, from General Investments, . . . . .	20.73
“ <b>Charles Haven Goodwin</b> Scholarship, from General Investments, . . . . .	5.46
Amount carried forward, . . . . .	<u>\$73,423.45</u>

TABLE NO. XIII, SUNDRY ACCOUNTS, CONTINUED.

*Receipts.*

Amount brought forward, . . . . .	\$73,423.45	
Advances to Observatory, from General Investments, . .	182.28	
“ <b>Peabody</b> Museum of American Archaeology and Ethnology, from General Investments, . . . . .	523.20	
Woodland Hill Fund, for land taken by the Metropolitan Park Commission, . . . . .	9,104.81	
Bursar's Sundry Accounts, . . . . .	16,846.72	
School of Veterinary Medicine, from University account to provide for the deficit of 1898-99, . . . . .	3,521.01	
<b>Price Greenleaf</b> Fund, gain from change of Special Investments, . . . . .	10,137.00	\$113,738.47

*Payments.*

<b>Gurney</b> Fund, annuities, . . . . .	\$1,000.00	
Anonymous Fund, annuity, . . . . .	200.00	
<b>Price Greenleaf</b> Fund, loss from change of special investment, . . . . .	10,914.00	
<b>Charles L. Hancock</b> Bequest, legal expenses, . . .	400.50	
Sundry balances, . . . . .	1,341.72	
Advances to <b>William Belden Noble</b> Lectures, repaid, . .	217.63	
“ Department Libraries, repaid, . . . . .	38.27	
“ <b>Jefferson</b> Physical Laboratory, repaid, . .	52.80	
“ <b>Farrar</b> Book Fund, repaid, . . . . .	7.86	
“ <b>George A. Gardner</b> Fund, repaid, . . .	20.45	
“ <b>Francis James Child</b> Memorial Fund, repaid, . . . . .	89.63	
“ <b>Charles Haven Goodwin</b> Scholarship, repaid, . . . . .	38.24	\$14,321.10

## GENERAL SUMMARY OF THE TABLES.

Table.		Receipts.	Payments.
I.	University, . . . . .	\$123,581.15	\$112,462.58
II.	College, . . . . .	643,183.41	644,423.95
III.	Library, . . . . .	46,064.30	60,510.19
IV.	Divinity School, . . . . .	40,803.68	37,506.04
V.	Law School, . . . . .	107,052.77	79,505.10
VI.	Medical School, . . . . .	152,220.11	164,319.50
VII.	Dental School, . . . . .	34,534.26	27,986.04
VIII.	Museum of Comparative Zoölogy, . . . .	33,099.02	25,750.98
IX.	<b>Peabody</b> Museum of American Archae- ology and Ethnology, . . . . .	11,165.54	12,205.91
X.	Observatory, . . . . .	48,936.19	50,486.57
XI.	<b>Bussey</b> Institution, . . . . .	18,022.44	15,590.13
	<b>James Arnold</b> Fund, . . . . .	7,245.40	6,883.13
	<b>Arnold</b> Arboretum, . . . . .	25,996.11	11,576.63
XII.	School of Veterinary Medicine, . . . . .	23,339.50	21,796.40
XIII.	<b>Bussey</b> Trust, . . . . .	20,088.98	20,088.98
	<b>Price Greenleaf</b> Fund, . . . . .	33,307.28	33,307.28
	<b>Gray</b> Fund for Engravings, . . . . .	772.45	1,148.05
	Woodland Hill Fund, . . . . .	440.36	1,241.36
	<b>Daniel Williams</b> Fund, . . . . .	755.10	849.32
	<b>Sarah Winslow</b> Fund, . . . . .	219.17	209.57
	Class Funds, . . . . .	452.86	299.00
	<b>John Witt Randall</b> Fund, . . . . .	1,457.74	928.15
	Construction Accounts, . . . . .	78,602.92	68,645.58
	Sundry Accounts, . . . . .	113,738.47	14,321.10
		<hr/> \$1,565,079.21	<hr/> \$1,412,041.54
		1,412,041.54	
	Balance, . . . . .	\$153,037.67	

Which is the net increase of the Funds and balances, excluding gifts for capital account, as also shown on page 51.



*Certificate of the Committees of the Corporation and Overseers of Harvard College, for examining the Books and Accounts of the Treasurer, entered in the Journal kept by him.*

The committees appointed by the Corporation and Overseers of Harvard College to examine the books and accounts of the Treasurer for the year ending July 31, 1899, have, with the assistance of an expert chosen by them, examined and audited the Cash book covering the period from August 1, 1898, to July 31, 1899, inclusive, and have seen that all the bonds, notes, mortgages, certificates of stock, and other evidences of property, which were on hand at the beginning of said year, or have been received by him during said year, are now in his possession, or are fully accounted for by entries made therein; they have also noticed all payments, both of principal and interest, indorsed on any of said bonds or notes, and have seen that the amounts so indorsed have been duly credited to the College.

They have in like manner satisfied themselves that all the entries for moneys expended by the Treasurer, or charged in his books to the College, are well vouched; such of them as are not supported by counter entries being proved by regular vouchers and receipts.

They have also seen that all the entries for said year are duly transferred to the Ledger, and that the accounts there are rightly cast, and the balances carried forward correctly to new accounts.

(Signed,)

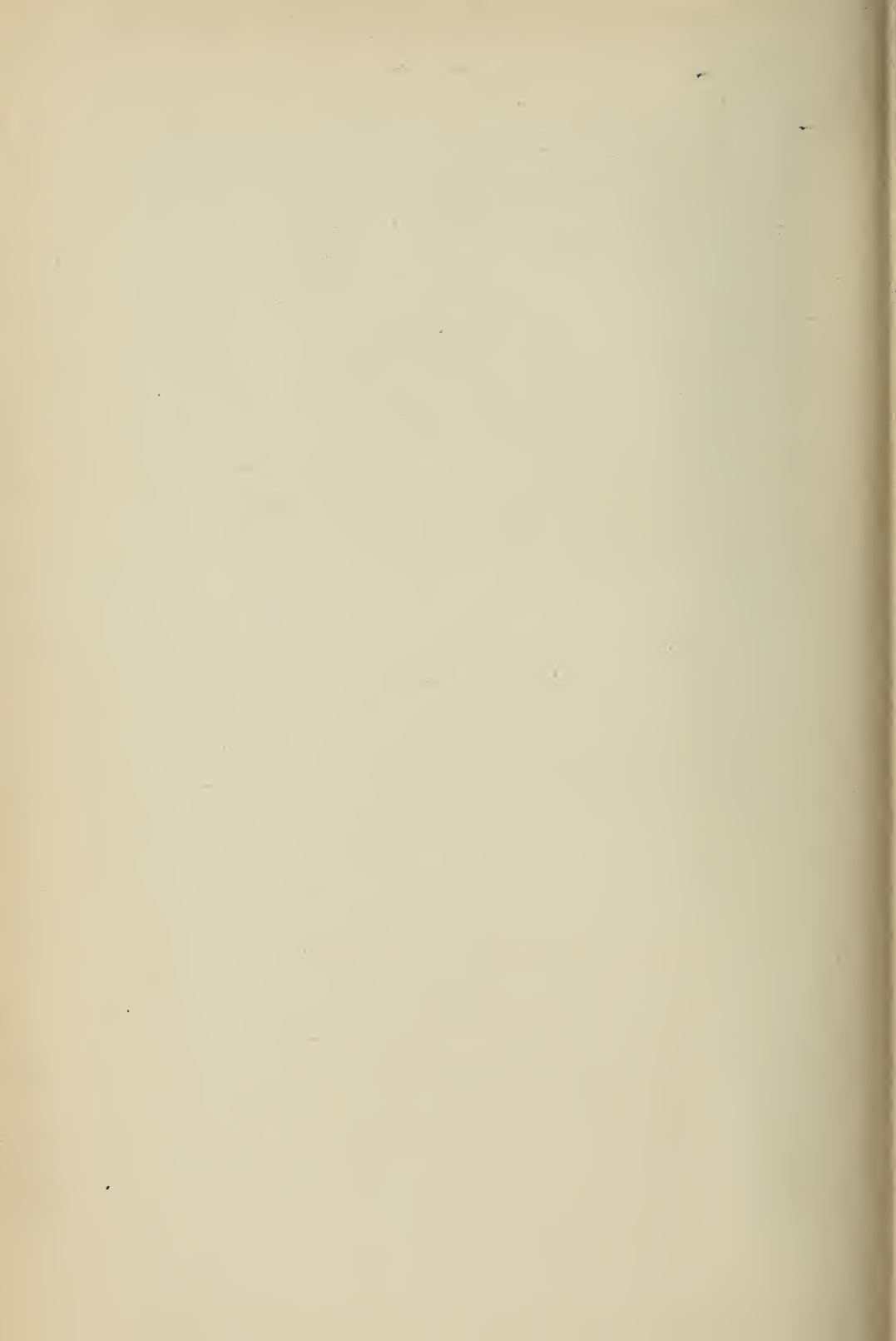
ARTHUR T. CABOT,	{	<i>Committee on the part of the Corporation.</i>
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F. L. HIGGINSON, EDWARD W. HOOPER, MOSES WILLIAMS,	}	<i>Committee on the part of the Board of Overseers.</i>
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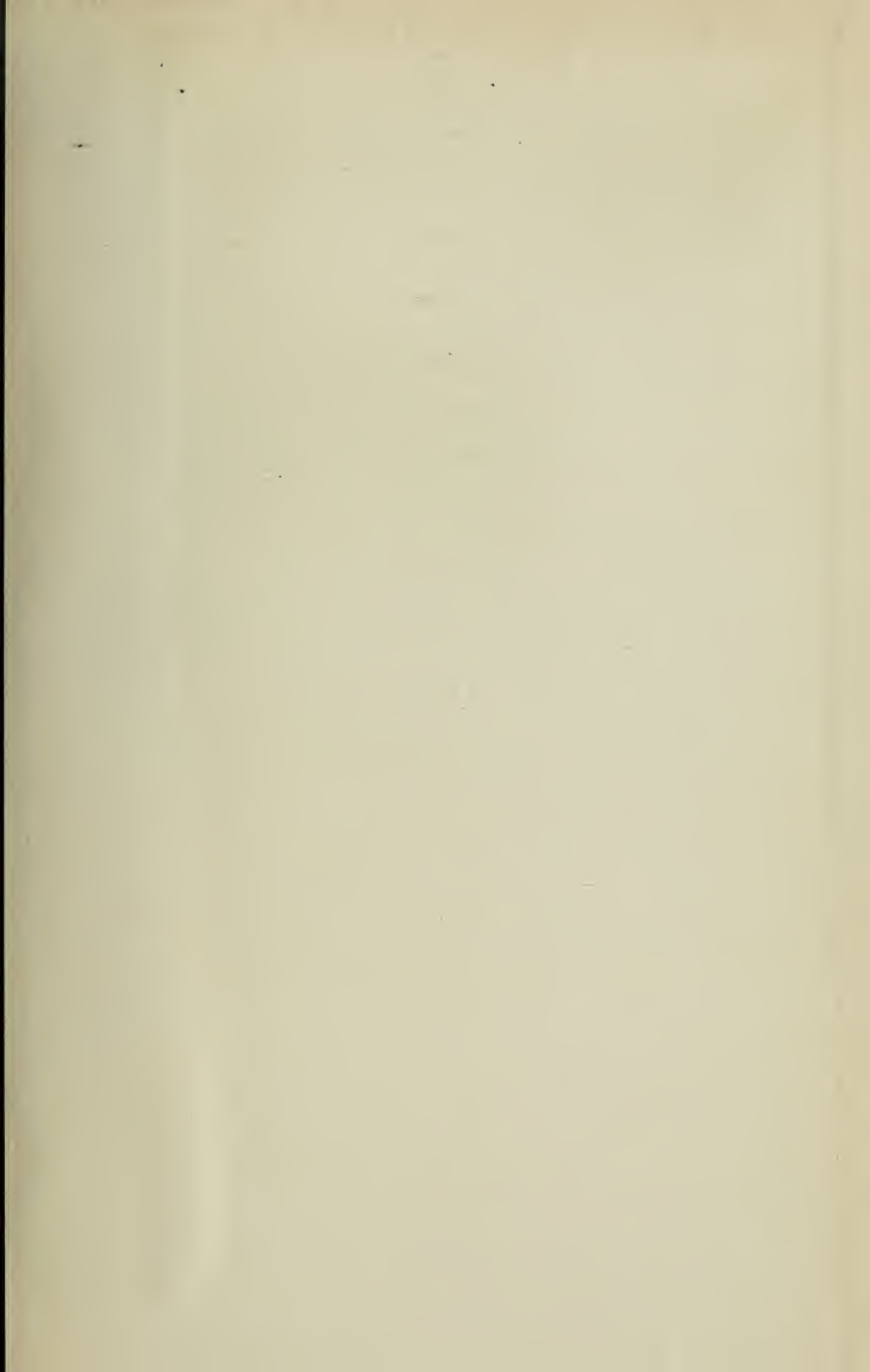
Boston, January 5, 1900.











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